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# PRELIMINARY REPORT July 1972

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Phase II

## REGIONAL OCEAN COASTLINE PLAN FOR THE SAN FRANCISCO BAY AREA

BAY AREA REGIONAL PLANNING PROGRAM



ASSOCIATION OF BAY AREA GOVERNMENTS





PRELIMINARY REPORT

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**REGIONAL OCEAN COASTLINE PLAN  
FOR THE  
SAN FRANCISCO BAY AREA**

**PHASE II**

A Report Prepared By

SEDWAY/COOKE

in association with

INGMIRE-PATRI  
BAXTER, McDONALD & CO.

For the

ASSOCIATION OF BAY AREA GOVERNMENTS

Rudolph R. Platzek, Planning Director  
William H. Liskamm, Project Manager

July, 1972

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July 18, 1972


Mr. Rudolph R. Platzek  
Planning Director  
Association of Bay Area Governments  
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Dear Mr. Platzek:

We are pleased to transmit the following report, representing the results of Phase II of the Association of Bay Area Governments' Ocean Coastline Planning Program. The purpose of this phase of the work has been to build upon prior surveys in formulating policies and strategies to guide the conservation and development of the coastline of the region's four coastal counties - Sonoma, Marin, San Francisco and San Mateo. It also should provide a sound basis for the determinations on decision-making entities, processes and criteria, to result from Phase III of the Program. The outlines of such determinations have begun to appear in this report as an outgrowth of the planning approach.

The plan proposes general policies dealing with conservation of natural resources, enhancement of environmental quality, use of open space, utilization of resources, and development in the coastal area. These have been translated into locationally-specific policies regarding open space and development. To assure implementation of these policies, the report details supporting methods and strategies, relying on: 1) effective control of public improvements; 2) regulation of use and development of the coast's land and water areas; and 3) public acquisition and management of selected lands and waters. Finally, the plan identifies directions for institutional changes, including organization, procedures and powers, necessary to realize the plan.

We have enjoyed the opportunity to assist the Association and its Ocean Coastline Planning Committee in this study. We wish to express our appreciation to the Citizens and Technical Advisory Committees for their valuable review and comment during this study, and to the Association's Program Manager for this study, William H. Liskamm, who arranged public and committee meetings, coordinated collection of portions of the data and compiled responses.



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Mr. Rudolph R. Platzek

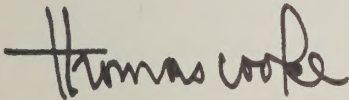
July 18, 1972

Page Two

It is our hope that this plan will provide a useful point of departure for concerted planning efforts at other governmental levels, as well as a basis for the many important decisions which the Association must make. The combination of timely planning and sound decisions will protect the Bay Region's coastline and secure its enjoyment for future generations.

Sincerely yours,

SEDWAY/COOKE

A handwritten signature in dark ink, appearing to read "Thomas Cooke". The signature is written in a cursive style with a horizontal line extending from the left side of the first letter.

Thomas Cooke, Partner

TC/ljs

Attachment





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# I. INTRODUCTION

## Need for Coastal Planning

The ever-increasing use of the San Francisco Bay Region's coastline testifies to the outstanding attraction the land-sea interface holds for man, especially for residents of a large metropolitan area. Paradoxically, this very attraction generates the threat of degradation of this fine resource and its related amenities. Because man actively seeks the highly valued sensory experiences of the coastal area, he may try to exploit or monopolize them. Thus, a growing regional concern is the permanent protection and enhancement of the coastline's natural and scenic resources and the prevention of activities degrading or destroying elements integral to coastal character. The failure to meet this need compounded by the innate scarcity of coastal resources, has produced noticeable symptoms of decline. In some areas, these are readily apparent to all but the most insensitive. In others, the symptoms are subtle but clearly are harbingers of a greater impairment which could occur without prompt action.

There is a broad range of opinion regarding the relationship of the coastal area to the balance of the region and its desirable future. Debate regarding future use and appropriate types and intensities of development generally reflects the classic conservation vs. development polarity. Some would preserve most of the coastal area, while others advocate substantial development. Although the former viewpoint generally is not an advocacy of total preservation, separate individual and group preferences, each with an area recommended for preservation, would, if taken collectively, constitute almost all of the coastal area. Conversely, few advocating development propose that all coastal lands be developed. Rather, individual landowners desire to maximize the use of their own land. Yet, because most of the non-public coastal land is held by potential developers or speculators, or is presently for sale, if all such individual proposals came to fruition, the coast could be unalterably ravaged.

The coastal area represents a resource coveted by many for a host of reasons. The landowner claims rights to use his property based on prior expectations. Part of the nearby public, long accustomed to undeveloped properties, even if only for visual amenity, claims a right to continue that state. In addition, a larger regional public claims the area as a common

heritage because of its unique nature and relative scarcity. Hence, the complexity of balancing such claims is great.

Although the coastline alone is considered in this study, it must be viewed as part of a larger entity. The coast is not an enclave, economically, socially or physically detached from the rest of the region. Hence, it must be considered in relation to overall regional planning policy. Indeed, any plan for the coast could not be implemented without consideration of the interactions between the coastal and inland portions of the region. This is not meant to disregard the interests of other governmental levels in the coastal area. Many decisions are now, and should continue to be made at the local level. The State has historic rights to tidal areas and seaward. Moreover, it is the repository of the right to regulate, which it has delegated to local government. The Federal government has authority to protect resources of national importance, and means to secure that goal is reflected in legislation now under consideration.

Yet, this plan for the coastal area uses a regional perspective as the proper one by which to reconcile competing demands. It is at the regional level that the planning needs and interests of all government levels, as well as the public at-large may be addressed most effectively. The Association of Bay Area Governments, recognizing that past management of the coastal area has not always been in the long-term interest of the region, previously embarked on a systematic planning program, of which this study is the second phase.

#### Planning Approach

The coastal area is defined for planning purposes in a way that encompasses the immediate coastal environment and includes those areas generally considered to be within that area. This includes the area from the 10-fathom contour offshore to a line onshore defined by including: 1) the extent of visibility from the shore or cliffs immediately above; 2) the extent of visibility from the major longitudinal travel corridors; and 3) those areas that exhibit suitability for marine and coastal wildlife and for coastal-dependent agricultural use.

The underlying goals which provide the basis for this planning study, include the following:



1. The principal physical assets of the coastal area have an integrity which must be maintained, to maximize social, economic, and environmental values.
2. Urbanization and utilization of the coast should not diminish coastal natural assets or their integrity.
3. The coastal area must be rationally planned and managed to protect human and natural values and to incorporate, direct and monitor factors that influence the success of that effort.

The planning approach used in this study and recommended for continuation reflects three other basic premises. The first acknowledges that the existing and future use of natural resources (such as natural habitats), recreation resources (such as beaches), scenic values, and unique agricultural lands, involve decisions all of which should not be made solely by local government, whether these be counties, municipalities or special purpose agencies, such as utility districts. Decisions as to the use and future of these finite and perishable resources must rest with representatives of the region, the State and, in some cases, the Nation. Conversely, the approach employed recognizes that many decisions can be made better by local governments.

Second, the plan can be implemented by existing governments within their legal and administrative limits, within a regional policy framework. However, it is recognized that for ensuring coordination and consistency, changes should be made in the present powers and responsibilities of government. Accordingly, the proposals here set forth policy and implementation methods which would serve the needs of decision-makers, at both regional and local levels. They also should relate to the needs of existing governments whose jurisdiction or powers may be extended, as well as to other entities which could be established by future action.

Third, the approach is directed toward correcting deficiencies in the market-oriented land allocation system as it exists today. To do so, it is necessary to guide public decision, which may be encouraging private actions at variance with sound coastal planning policies, and to guide the actions of the private market itself. It will be necessary to ensure that many "costs" of development not now considered by the private market, and passed on to the public, such as pollution and degradation of natural resources, are fully ac-

counted for in decision-making. Public uses unable to bid effectively for land or water areas through the private market system must be better able to compete effectively for needed sites. Public improvements should not unnecessarily inflate land values and make impossible the retention and use of natural resources and open space in the coastal area.

These premises suggest that the plan contain a hierarchy of policies starting with the dual aims of conserving natural resources of the coastal area, especially those unique to the area, and also utilizing coastal lands and waters in a manner which produces maximum benefits for existing and future populations. These policies must be supported by a system for administering and regulating public and private actions in the coastal area in accordance with these policies. Thus, the scope and content of the plan policies are determined in large part by consideration of implementation approaches, especially powers to be used and levels of government desirably responsible for achieving the plan.

#### Plan Elements

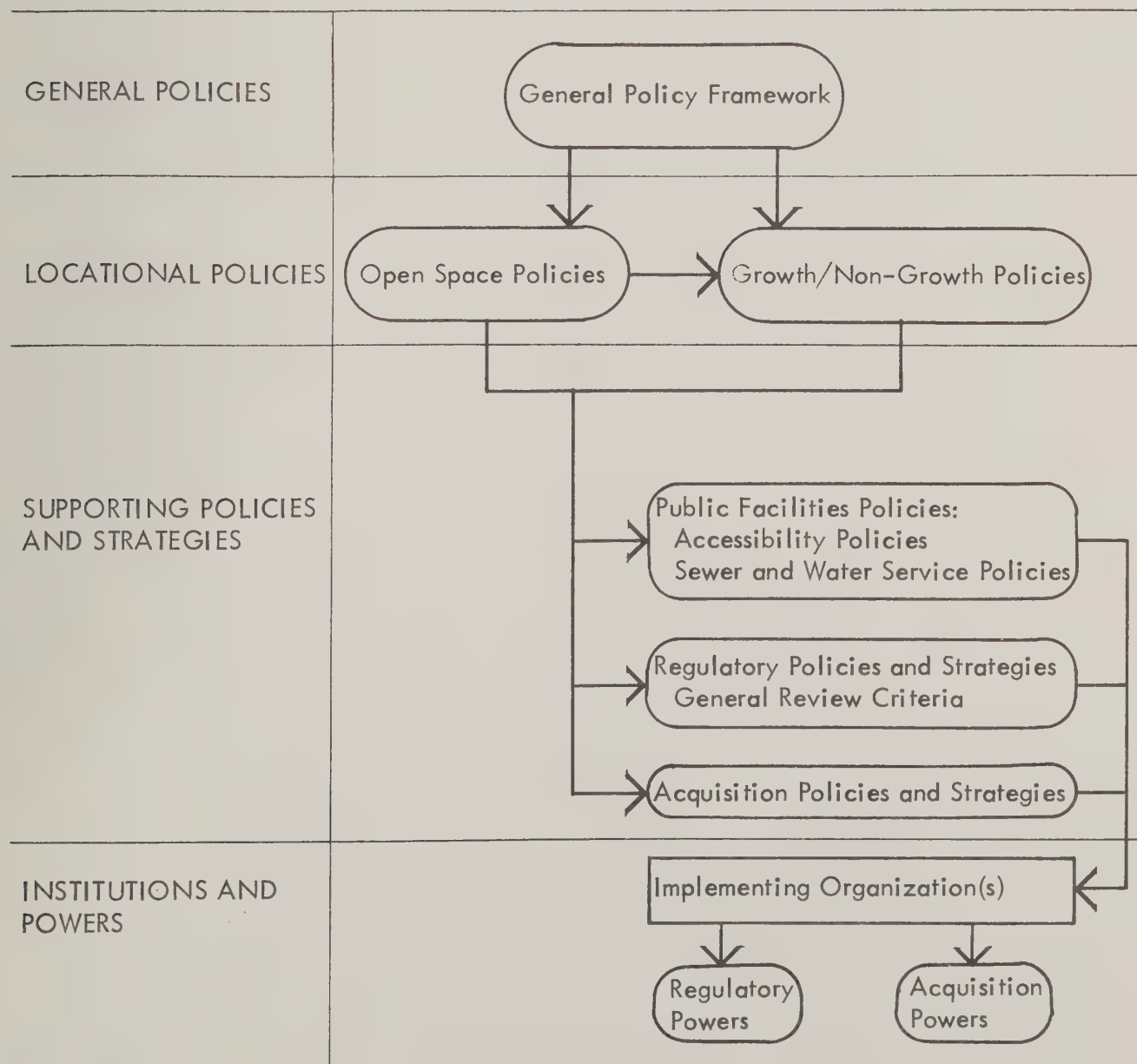
The basic plan elements are briefly described below and in the accompanying diagram. The report includes a fuller presentation of these elements.

1. General Policy Framework. The plan sets forth general policies promoting the overall goals of: a) conserving natural resources of the coast; and b) utilizing the coastal lands and waters in a manner which produces maximum benefits for existing and future populations. These include general policies dealing with conservation of natural resources, enhancement of environmental quality, use of open space, resource utilization and the respective relationships of these aims to urbanization and development.

2. General Locational Policies. The aims of the general policy framework are translated into locationally-specific regional and local policies which recommend: a) areas with specific open space values which are to be protected or utilized in a manner consistent with these values and therefore to remain principally in open space; and b) areas within which intensive development not directly related to coastal open space values is to be confined. This level of policy is intended primarily as the basis for determining the location, capacity and timing of major public facilities, such as water

# REGIONAL OCEAN COASTLINE PLAN

## PLAN ELEMENTS





treatment and distribution facilities, roadway, and sanitary treatment facilities. It also serves as a basis for subsequent recommendations on application of, and responsibility for, policy-making and eminent domain.

3. Supporting Policies and Strategies. The plan incorporates an overall strategy which recognizes that effective planning in the coastal area, as well as elsewhere, must rely upon: a) effective control over public improvement actions which affect land values and serve as catalysts for private development; b) regulation of use of land and water areas and development in these areas; and c) public acquisition and management of areas where it is not legally expeditious or desirable to use regulation to maintain open space values. It is essential that policies dealing with each of these aspects be mutually supportive and not work at cross-purposes. Accordingly, the plan includes the following: a) public facilities policies, addressed to the maximum degree of accessibility that should be provided to various parts of the coastal area, and to the level of water and sewer service compatible with the general policy framework and locational policies; b) policies regarding the source and type of regulatory control to be exercised. These identify two principal areas - a primary and a secondary coastal area, in which regional and local regulation should be applied in varying degrees. The policies suggest the kinds of controls employed and governmental responsibilities for administering the controls; c) policies addressed to the lands to be publicly acquired, the conditions under which these should be acquired, and the property interests sought.

4. Recommended Institutions and Powers. Effective implementation of coastal area policies requires recognition of the local, regional and state interests in the area, as well as an awareness of the impacts of uncoordinated decisions. Hence, the concluding portion of the plan identifies proposed institutional changes, with special emphasis given to regional organization and responsibilities, relationships to local governments, and related assignment or reassignment of new and existing powers.

## II. EXISTING CONDITIONS

The region's ocean coastline covers 246 miles of immeasurable public value, including Bodega and Tomales Bays and Bolinas Lagoon. Where the land and sea meet is the place where natural forces are best displayed. It is also where man's adverse actions can be so blatantly visible.

The elements which define the character of the coastal area – the land and water forms, marine life, wildlife, and vegetation – may individually occur elsewhere. However, nowhere do they achieve the variety, configuration, and combination which appear within the coastal area. This chapter contains a brief description of these elements and conditions of the study area, including a survey of the physical environment – natural and man-made – and a discussion of the issues and problems of man's occupancy of the coastal area and factors contributing to them. These have dictated the data and analysis for this study found in the locational policy map descriptions in Chapter III and detailed in the Technical Appendix.

### THE PHYSICAL ENVIRONMENT

The coastal area is not discussed in detail in all respects here, because the data collection and analysis for this study is predicated upon issues surrounding use and enjoyment of natural resources. Data collection and analysis also required the establishment of a general policy framework that would enable their translation into specific and locational open space policies. The data collection and analysis procedures are detailed in the Technical Appendix, and the results are given primary expression in the Open Space Policies in Chapter III.

Before a more locationally-specific description of the coastal area is provided, several general factors that unify and distinguish this area from the rest of the region must be considered: the ocean and its effects on the shore; climate, and the inland extension of marine influence; and the geology, soils, and fresh water resources of the coastal area.

The following description of conditions documents the uniqueness of the area of confluence of these conditions. It is this meeting, not only of land and sea, but also of the hydrologic system, geology and the marine climate that, in part, justifies the special attention given to the coastal area in this and other studies.

## The Ocean and Climate

There are four factors pertaining to the ocean that are most important to the shoreline and to the inland extension of marine influence through climate - ocean currents, water temperature, wave action and tides.

Currents and water temperature are intimately related to, and are primarily dependent upon, the California Current, a 400-mile wide continuation of the cold Aleutian Current and the North Pacific Drift, that slowly moves southeastward along the region's shore. During the spring and summer, the prevailing westerly winds drive surface waters obliquely along the shore, and the resulting current, in combination with the earth's rotation, causes offshore movement of surface waters. This in turn draws nutrient-rich colder waters from as deep as 600 feet to the surface adjacent to the shore, a process called "upwelling". Phytoplankton photosynthesize the sun's energy, utilize the nutrients, and they, in turn, support zooplankton and higher forms of life, finfish and shellfish, in large numbers.

Due to the California Current and during part of the year, the upwelling of bottom waters, a corridor of relatively cold water lies adjacent to the region's shore, with warmer water to seaward. In the autumn the upwelling ceases, and the relatively warm Davidson Current from the south partially dissipates the normally cold waters near the shore. These factors have considerable effect upon the climate of the Bay Region coastline, and especially that of near-shore areas.

In addition to the erosional effects that waves have as they dissipate their energy on the beaches and sea cliffs of the region, their oblique angle of incidence creates a low-velocity longshore current. This current, or littoral drift, transports beach materials along the shore within the zone of wave turbulence. Beach sands and other materials originate principally from streams discharging sediments from eroding hillsides of the coastal and inland mountains. Beaches are thus constantly moving, and structures placed in the littoral zone can interfere with the transport of these materials, causing accretion "upstream" and severe erosion "downstream", as in the case of the small craft harbor breakwater at Half Moon Bay in San Mateo County.



The tides are periodic fluctuations of sea level that alternately flood and expose near-shore areas, and create the intertidal zones, which have a variety of unique environments upon which almost all marine life is dependent during some part of their life-cycle. The region's coastline experiences a mixed tidal pattern, with two high and low tide cycles of unequal magnitude each lunar day of 24 hours and 50 minutes.

With moist Pacific air masses to the west and dry continental air over the lands to the east, separated by the coastal area and its varied topography, the region as a whole enjoys a wide degree of climatic variation. Because of the phenomenon of upwelling, coupled with the California Current, isotherms, or lines of equal temperature, are oriented generally north-south, instead of the more usual east-west, thereby paralleling the coast instead of the lines of latitude. Experiencing generally westerly to northwesterly winds throughout most of the year, the coastal area has a maritime climate, with relatively warm and wet winters, cool dry summers, small daily and seasonal temperature ranges, and high relative humidities. Transition from this marine-dominated climate to the greater climatic extremes inland is influenced mostly by topography.

As the moist, comparatively warm Pacific air masses are swept by the prevailing winds over the colder water adjacent to the shore, sea fogs or low stratus clouds are formed, mostly during the summer months. These are generally carried only a short distance inland, often only to the tops of coastal hills and into valleys that are open to the sea and wind. These fogs and clouds "burn off" as they penetrate inland, and the coastal area itself frequently is clear during daytime hours.

Typically, for western coastal margins of continents in the mid-latitudes, the air above the fog is warm, dry, and clear, due to the presence of descending air masses. These conditions are conducive to the formation of temperature inversions that can act as a canopy to prevent air pollutants from escaping. With light winds and the presence of an inversion layer, both horizontal and vertical ventilation are inhibited, and the usual "cleansing" of the air through mixing and dispersion cannot be accomplished. While air pollution is not a current problem to the Bay Region coastal area, the natural environmental factors exist that could lead to that condition if use of its airshed for disposal of waste products from combustion was allowed to expand in an uncontrolled manner.

### Fresh Water Resources

There are currently three options available to the coastal area to secure its public water supply: ground water from wells; local surface waters; and imported surface waters. The northern coastal area relies on local surface waters for the most part, while the San Francisco and San Mateo Counties' developed areas utilize a combination of all these sources for their water needs. Ground water supplies are generally limited, and most of these fresh water aquifers are in direct contact with sea water near the shore. Further development of high-yield wells utilizing these sources within approximately one-half mile of the coast may cause degradation of water quality, due to alteration of the normal seaward hydraulic gradient, to the point where salt water intrusion of these aquifers occurs, as in the case of Pescadero Creek, in San Mateo County.

North of the Golden Gate, where most public water supplies for the immediate coastal area are from local surface waters, water requirements have already exceeded summer stream flows. This situation is perhaps worst at the community of Bolinas, in Marin County, where there is adequate storage for only four day's supply and the only source very frequently dries up toward the end of summer - almost concurrently with Labor Day weekend - the time of highest water demand.

Adding to the problems of meeting further water demands in these northern coastal areas is pollution of local sources, and the lack of availability of imported surface waters. However, the latter problem is not shared by coastal neighbors to the south, because San Francisco has its own water importation system, and recently guaranteed water supply extensions to San Mateo County coastal water districts.

### Geology, Physiography, and Soils

The region's coastal area is in a dynamic geologic setting. While mountains here are often rising, they are being eroded and carried by streams to fill the valleys - which themselves are often sinking. While some faults are slowly creeping, the San Andreas Fault may be building toward another in a continuing series of earthquakes. Rugged mountains slope abruptly to the sea, small alluvial plains fill the bottoms of many stream valleys and structural sags, and ancient marine terraces are found many tens of feet above the present sea

level. All of these features provide substantial evidence of the slow but continual geologic forces and erosional processes that are still shaping this region's coastal area today. These are the geologic resources, the materials that, in combination with the climatic conditions of this area, have produced the variety of soil and foundation conditions that can be, at the same time, both uniquely productive and hazardous to public safety.

The coastal area is a part of the geomorphic province called the Coast Ranges, a series of low mountains and intervening valleys that are roughly parallel to the coast. Extending both north and south beyond the region, they are divided by the Golden Gate.

One of the unifying physical features of the study area is the San Andreas Fault and its related fault systems – widely known for the frequent earthquakes experienced throughout its length. It roughly parallels the coast, and traverses the shoreline in each of the counties except San Francisco. Damage from either direct shock, seismic response of susceptible earth materials, or fault movement is thus an ever-present danger to occupancy of the coastal area.

Medium-textured, moderately deep soils derived from the underlying sandstones and shales occur extensively throughout the study area. The terrace soils are permeable, having slightly to moderately acid loams with locally developed heavy claypan subsoils. The soils of the alluvial valleys are deep, vary in texture from light sands to heavy clays, and in some localities have problems of high water table or over-flow from winter rains.

#### Fish and Wildlife Habitats

Local fish and wildlife populations exist where the range of environmental conditions is suitable; with vegetation the most important aspect, because it modifies environmental extremes while fixing solar energy and minerals for use by animal life. Vegetation, as the primary determinant of animal habitat, provides a general indication of other kinds of organisms that will be able to survive.

In the following summary of the coast's natural environment, two types of communities are distinguished - terrestrial and aquatic. Terrestrial habitat types consist of a unique combination of plant and animal life that contributes significantly to the overall makeup of the coast. In some cases, these habitats are found only at the coast, while the others have certain characteristics that set them apart from similar inland areas. These terrestrial habitat areas are a varying mixture of grasses, trees, and shrubs of many species and in many combinations that set one community apart from another. They vary from deep redwood forests to grasslands or the sparse vegetation on coastal sand dunes.

Aquatic habitats combine fresh and salt water with varying types of bottom conditions - mud, sand, and rock - into the coastal intertidal and subtidal areas. These are each unique sorts of environments, and each has a very important role in at least a portion of the life cycle of almost every marine organism. These areas include fresh and salt water marshes, mudflats, and sandy and rocky intertidal and nearshore areas.

From north of the Mendocino County line to just north of Fort Ross, the coastal area is predominantly in open grasslands backed by maritime pine forest. The grasslands are composed of dense, medium-tall, meadowlike grasses with interspersed trees, while the dense yet interrupted maritime pine forest is characterized by low to medium tall needleleaf evergreen trees that include the Bishop Pine, and is often backed by dense redwood forests. The Bishop Pine is one of two coastal pines native to this region which, due to rapid growth rate, are of high value in reforestation activities. The entire range of genetic variability of these trees should be preserved, so that a resource capable of meeting the exigencies of a changing tree disease potential may be assured.

South of Fort Ross the forests thin considerably, and north coast grasslands occupy the more exposed areas with small wooded areas in the more protected canyons. These grasslands continue with varying degrees of tree cover along the east side of Tomales Bay to south of Point Reyes Station before the wooded character again begins to dominate.

Within this area, there are a number of important freshwater and estuarine habitats, most notably Russian River, Bodega Bay, Estero Americano, Estero de San Antonio, and Tomales Bay. The Russian River supports a wide variety of wildlife



in the riparian habitats along its banks, and is an important salmon and steelhead spawning stream.

Coastal and marine birds nest in large numbers in selected locations along the rugged north coast, and the intertidal and nearshore subtidal areas abound with marine life. Coastal strand communities are found on the dunes and sand spit to the north and south, respectively, of Bodega Bay. The vegetation here is low or prostrate, and includes some woody perennials. The Bay itself has been classified an Extraordinary Wildlife Waterway by the State of California due to the wide variety of birds, shell fish, and other marine life that are dependent on its wetland habitats.

The Estero Americano and the Estero de San Antonio have both been designated as Extraordinary Wildlife Waterways by the State of California, because of their high quality estuarine and coastal marsh habitats as well as their importance to both resident and migratory bird populations. They are surrounded by rolling grasslands with minor areas of shrubs and occasional trees, and are grazed for the most part. Tomales Bay is another marine habitat area of high value, and has also been designated an Extraordinary Wildlife Waterway. It varies from marine conditions to a high quality estuary at its southern extremity, and supports large numbers of shell fish, including commercial oyster operations. The shore areas of the Bay are diverse in their characteristics, and include coastal strand communities on the extensive sand dune areas at Sand Point and Toms Point, as well as coastal marshes and mudflats of high habitat value to shellfish and shorebirds.

To the west and south of Tomales Bay is the Point Reyes National Seashore, which contains several different types of coastal and marine habitats, including the only extensive area of coastal sagebrush north of Golden Gate. The Olema Valley represents a mixture of north coast grasslands interspersed with large areas of mixed evergreen forest – including many eucalyptus – below stands of coast redwoods in the higher and more sheltered areas along Bolinas Ridge. The coastal sagebrush grades into grassland, again south of the National Seashore, and continues, interrupted less frequently now by redwoods and more by coastal scrub. This coastal scrub is characterized by low woody shrubs, including chaparral and manzanita, and it dominates the more immediate shore areas from the area of Stinson Beach to the Golden Gate.

Within the area are two habitats of outstanding value to the region: Duxbury Reef and Bolinas Lagoon. Duxbury Reef is the largest shale reef in North America, and its intertidal area abounds with marine life. A short distance to the east is Bolinas Lagoon, whose habitat and open space value to the region has been attested to by a number of studies, all of which declare the lagoon to be a unique wetland habitat of great significance to resident and migratory waterfowl and shorebirds, whose quality has been deteriorating, and which should be preserved and enhanced as a wildlife refuge. This lagoon, designated an Extraordinary Wildlife Waterway by the State, is bounded on its south side by a sandspit (occupied by the Seadrift subdivision) that contains remnants of a coastal strand community. This community extends to the south end of Stinson Beach, and contains large woody shrubs as well as dune grasses. South of Stinson Beach the shore areas are generally very rocky, and are often used by cormorants, gulls, and other marine birds as nesting areas.

South of Golden Gate, the City and County of San Francisco is, for the most part, an urban environment. Most of the vegetation was placed there by man in the last 100 years, including the bulk of the Presidio and all of Golden Gate Park.

The shore areas north and east of San Francisco's Point Lobos abound with marine life, and the rocks are frequented by numerous sea lions and sea birds. At the southern margin of San Francisco, some areas of coastal strand exist, with dune grasses and minor woody vegetation. This portion of the coastal area is often very foggy, and in the more protected areas are found patches of forest, including pine, planted hardwoods, and occasionally coast redwood.

For the most part, the coastal area of San Mateo County has a predominantly coastal sagebrush plant community, which varies from thick, often impenetrable spiny scrub to more open communities dominated by shrubs, and occasionally containing grassy areas. Smaller mammals, as well as a variety of birds, reptiles, and invertebrates are found here.

The terrestrial habitats of San Mateo County include significant riparian communities along most of the intermittent and all the perennial streams of the area. Dense wooded areas of mixed hardwoods and woody shrubs occupy these areas of more certain water supply and less exposure to wind. The beaches are generally backed by bluffs or cliffs, and often there are

rocky intertidal areas of great habitat value to marine life. There are several streams that have very small coastal marshes behind the beach, but the only area with major wetland habitat potential is at Pescadero Creek. At the southern extremity of the study area is the Point Ano Nuevo State Reserve, which contains, and is surrounded by, habitat types having regional significance. The offshore areas provide rocky areas for sea lions, seals, sea birds, and intertidal and subtidal marine life. To the immediate north is an extensive dune formation having a coastal strand community of dune grasses and woody shrubs. Just inland from the State Reserve is the most northerly stand on the Pacific coast of Monterey Pine, the second of two coastal pines of the region having very high value for reforestation due to very rapid growth. This stand represents a probable northern extreme of genetic variability of this species that should be preserved.

### Major Problems and Issues

Population growth, changing ways of life, greater mobility, and increased leisure time have combined to create a major increase in the demand for finite and often fragile coastal resources. Many significant problems have arisen with regard to use of these resources. These typically involve conflicts between and among the various public and private users of the coastal area.

An introductory listing of the most critical problems facing the Bay Region Coastline includes the following: residential developments which are large land consumers and poorly located and sited; limitation of public visual and physical access to the coastline by intervening private and public ownership and development, location of utility, commercial and manufacturing uses which are not dependent on a coastal location, water pollution, inadequate public and private recreational opportunities, conversion of open space, including agricultural uses, grazing and wildlife habitats, to other uses, loss of specialized agricultural croplands, degradation of areas with special natural, historic or scenic values, and development on areas of natural or geologic hazards.

The following is a more detailed presentation of these problems and issues.

#### Problems Generated By Coastal Development.

Local governments are almost completely fiscally dependent upon the property tax; the pursuit of tax variables often constitutes a tacit development policy. A lack of comprehensive planning for many areas also may be noted. Local public service districts are fragmented. Current laws do not adequately allow for limitation over public service extensions into areas with severe public safety hazards or high open space values.

With no authority to regulate coastal use and development or to protect other rights of the public, serious region-wide issues and conflicts continue to arise and worsen. What, if any, should be the limitation on the use of scarce coastal area resources, and especially by non-dependent uses? Should there be a further diversification of the economy of the coastal area, or should there only be public ownership for pub-



lic use of coastal lands and waters? While these and other questions are being pondered locally and regionally, land divisions and development, generally for first and second homes, are preempting prime agricultural lands, threatening unique natural habitats, and degrading the scenic and recreation values of the coastal area. Moreover, many developments are taking place on sites with severe public safety hazards, and are further straining the already limited water resources of many areas.

With limited resources of ground water throughout the regions' coastal area, local surface flow is adequate for some urban growth, if watersheds are not paved over and waters polluted. Even in the face of potential and actual public water supply crises, no overall water supply plans commensurate with proper levels of development have been prepared. Overdrafting of groundwater supplies, saltwater intrusion of fresh water aquifers, and water shortages have been resulting. Thus, increases in water resources through importation and reclamation have been proposed to alleviate problems, but there has been little coordination with the regional conservation and development planning.

Counties, cities, industries, and individuals are disposing of their wastes in coastal waters in apparent disregard of the quality of the coastal environment. Meanwhile, there has been a lack of consideration for overall sewage disposal requirements based on the levels of development allowing continuation of the existing open space character of the coast.

There is no sewage system discharging to the ocean that currently does more than provide primary treatment to its effluent. Policing of septic tanks and filter fields is almost non-existent. Many are leaking sewage into ground water systems, from which it passes into sensitive marine areas. Clearly, the worst case of raw sewage discharge is into the Bolinas Lagoon, which receives such discharges from development on all sides.

While the bulk of those discharging wastes into the marine environment have been forced to acknowledge that they must act to change their practices by the Regional Water Quality Control Board, some desire to provide for levels of future growth that would not allow maintenance of the character of the coastal area. Former Bolinas Community Public Utility District Directors had proposed an \$8.1 million system, for a

combined existing permanent population of approximately 2,000 that could virtually have forced a development in Bolinas and Stinson Beach due to effects on local taxes, yet effluent from the proposed system still could have had adverse ecological effects on surrounding marine areas. The City of Half Moon Bay has received Federal funding to construct sewage treatment capacity for 40,000 persons by 1974. A more reasonable growth rate would preserve the values of the "mid-coastside" as an open space resource for San Mateo County and the region.

Alterations to the natural temperature, salinity, and nutrient content of coastal waters, disrupting their former ecological balance, are continuing. Timber harvesting techniques and poor agricultural practices, including overgrazing, have left barren and eroding lands that produce silt-choked streams in which salmon and steelhead are no longer spawning. The bays and estuaries downstream also are filling with sediment because of poor land management practices.

Additionally, dams that intercept natural sediment flows from coastal and inland hills, constructed for various reasons, result in "starvation" of beaches. Beaches are continually being eroded and replenished by longshore currents that carry beach materials "downstream". Any interference either with the supply of those materials or with the currents themselves cause adverse effects upon stability of coastal beaches.

While there are economic and social benefits derived from the construction of harbors, they are often sited, built, and managed with little apparent regard for their surroundings. Coastal bays and estuaries have been both dredged and filled, to the detriment of coastal and marine fish and wildlife resources. As an example, Pillar Point Harbor, adjacent to Half Moon Bay, has a breakwater constructed to enclose it which has precipitated excessive erosion directly to the south. Not only has the beach disappeared, but also the road that was once behind it. The Harbor District is continuing with plans to fill approximately 40 acres of the harbor, using about 1,600,000 cubic yards of fill, to promote harbor development that the District has not yet shown will pay for itself or be in the public interest.

Pressure for additional harbor facilities is continuing in the northern portion of the region as well. There has been a recent request to the U.S. Army Corps of Engineers that they

investigate the possibility of dredging the mouth of the Russian River to keep it open primarily for a small boat harbor throughout the year. The request cited the needs of fish who venture upstream to spawn. (However, the river has always been closed naturally with river-borne sand and gravel during the dry season, yet the fish have always managed to overcome this condition.)

Unightly structures, often incompatible with the quality of the coastal environment, exist along the coast, both onshore and offshore. For example, many areas along State Highway 1 that serves the Sonoma coast are lined, wall-to-wall with houses that destroy coastal character and block views and public access to the shore. Other examples may be found in Daly City, Pacifica, San Francisco, Dillon Beach, and Stinson Beach. More development of this type can only further reduce the quality of the coastal environment and public use and enjoyment.

#### Conflicts Among Coastal Area Users.

Conflicts have continually arisen between conservation organizations and local interest groups, and individuals, companies and public agencies wishing to develop coastal lands or waters. Many of these conflicts are actually a clash between development and public open space or public safety values. However, others stem from a preservationist attitude by local residents who see their life style threatened by further coastal growth.

Development may be initiated either in the public or private sector; in either case there is controversy over changing the existing open space character of the coastal resource. Examples are Pillar Point Harbor development plans, Deane and Deane's proposals for additional development near Half Moon Bay, the proposed freeway to bypass the Devil's Slide area south of Pacifica, and the coastal recreation homesite developments of Marin and Sonoma Counties, including Sea Ranch, Bodega Harbor, and Oceana Marin.

The activities that require the most coastal land either are residential - both primary and secondary housing - or agricultural. Most other activity types are relatively site-indifferent or require much less land. Most coastal agricultural activities occupy those lands highly prized by residential developers who are able to bid the land price above levels

which agricultural operations can afford. This same situation exists with regard to lands most attractive for public recreation. Second home residential developers are very active competitors for areas that are most scenically attractive.

Controversies revolving around development conflicts with open space values often involve "indirect" impacts of such growth: increased traffic, loss of community identity, or long-range costs of public services as opposed to the short-range improvements in the property tax base. Also at stake is the existing open space character of the area involved. Environmental threats posed by development often go beyond open space and community concerns, extending to hazards to persons and property; the coast is variously impacted by beach erosion, cliff retreat, earthquake hazards, fault displacement, flooding, landslides, and seismic sea waves from time to time. Development appears to have an alarming propensity for locating in some of the most hazardous locations along the coast.

The effects of development on the "health" of the coastal environment also are at issue. The "frontier" mentality "moving on" when local conditions become intolerable, for the most part stops at the Pacific Ocean coastline (Alaska and Hawaii excepted). The set of physical resources of the coastal area are dependent upon climatic and oceanic factors unique to similar latitudes on the western margins of major continents. Development brings liabilities as well as benefits including drainage of wetland habitats, increased soil erosion and sedimentation of streams and coastal wetlands, added dangers of fire, and a general reduction in visual amenity. Ports often reduce public access as they broaden the local economy, marinas reduce wildlife habitat and public beach use as they provide for increased boating recreation, and poorly-placed public recreation facilities of all kinds can pose a threat to the coastal amenity upon which their utility depends. Development requires access and public services; high standard roads and increased public services attract additional development. However, without adequate access and public services, locally-generated waste products threaten the health of the surrounding environment and the recreationist is in a traffic jam on his way to enjoy this untrammelled regional recreation resource. Hence, it is clear that careful attention be paid to public investments so that their effects on the coastal area are optimal.



Many lobby vigorously for additional public acquisition for recreational uses and to "save the coast from development". They cite parking deficiencies near many beaches, lack of access to beaches from other areas, need for additional recreation areas near crowded urban centers, overcrowding at many existing beaches and campgrounds, and loss of scenic qualities of the coast. Although some efforts have been made by local, State, and Federal agencies to purchase land and waters, and otherwise secure these coastal resources for public use, this approach has not proven successful in ameliorating coastal issues and problems. As public ownership expands, local property tax rolls decline, and the fiscal strain on local governments increase. Moreover, as many conservationists will agree, many public management and public developments have been equally as insensitive to coastal surroundings, their neighbors and regional needs as has private development.

## PLANNING FACTORS

While development of the coastal environment appears systematically destructive, it is actually haphazard and chaotic. Several factors contribute to this situation. The most important of these are governmental structure, public access, the market land allocation system, and public investments in services.

### Governmental Organization and Procedures

At present, there is no coherent planning and management structure that systematically reviews and coordinates the full range of current and future interests in the region's coastal area. The unique, finite, and often fragile coastal resources have been manipulated only on a single-purpose basis for many years. In the past, local planning and development efforts have been predominately urban-oriented, and local governments have been the stewards of coastal resources. Departments at all levels have viewed single-focus coastal resources from an extremely narrow perspective. They have, for example, acquired and developed beaches and other recreation areas, leased and granted tidelands, regulated the production of minerals and timber, protected fish and wildlife, regulated commercial fisheries, and allowed development to encroach on areas having high open space value and severe hazards to public safety, yet all of this has been done with little or no coordination and without an accepted comprehen-

sive planning framework that would allow rational decisions to be made in the public interest.

Yet, some salutary steps have been taken. As the designated regional clearing-house, the Association of Bay Area Governments must review requests for Federal and State funding of projects for conformance with Federal law (including NEPA, discussed below) and with adopted regional plans, programs, and policies, pursuant to the directives of U.S. Office of Management and Budget Circular A-95. Coastal problems and issues have only begun to be effectively addressed at the regional level, and the A-95 review function does not pertain either to private development on private property or to projects that are to be financed entirely on a local government basis.

The Federal and State governments have both recently adopted legislation requiring that environmental impact statements be prepared for certain projects. The National Environmental Quality Act of 1969 (NEPA) authorizes and directs all Federal agencies to utilize environmental and social information, along with economic and technical considerations in their decision-making. Furthermore, these agencies are required to prepare an environmental impact statement for any project that would have a significant effect upon the environment. The environmental impact statement must concern itself with: the environmental impact of the proposed action; adverse effects that cannot be avoided pursuant to the proposed project; alternatives to the proposed action; a comparison of short-term vs. long-term environmental relationships; and an estimation of the resources that would be committed. Agencies are also required to consult with other agencies having applicable expertise or jurisdiction.

This review procedure should be an integral part of the regional planning process, and should identify impacts as they relate to the plans, programs, and policies of the region. However, as it presently operates, impact statement review by the regional clearinghouse is not an assessment of the environmental impact on the region, but rather is a process for identifying omissions and inadequacies in the statements, as submitted. Review of these statements by the clearinghouse must be accomplished within a very short time period, concurrently with review by all the single-purpose agencies with expertise in specific functional areas. However, the ultimate impact of a project is determined by interaction of individual impacts, and the re-

gional clearinghouse has no effective opportunity to review these. This situation effectively precludes a comprehensive review of a project and its real impacts for conformance with regional plans, policies, and programs because the review process is limited to an isolated exercise of responding to the statement as submitted.

The California Environmental Quality Act of 1970 has been patterned after the Federal legislation, contains similar requirements, and therefore, similar shortcomings. A recent case - Friends of Mammoth v. Mono County - denied an attempt to compel large private developers to prepare an environmental impact report as a condition of obtaining a local permit. The case is now on appeal to the California Supreme Court. The State Attorney General's brief to the Supreme Court in this case interprets this law as extending the environmental impact statement preparation requirement to private development on private land - if it can be demonstrated that there may be significant environmental effects from the proposed development. Here, the burden of proof would appear to be upon the public to demonstrate the possibility of adverse impact, and not upon the private developer to show that his project will not have such effects upon the public-at-large.

#### Submerged Lands.

The Federal Government exercises exclusive jurisdiction and control of submerged lands on the outer continental shelf. The seaward limit of the outer continental shelf is currently defined as extending to a depth of 200 meters or the maximum feasible exploitable depth. The landward limit of Federal ownership of submerged lands is the boundary of coastal submerged lands granted to the states by the Submerged Lands Act. This boundary is presently in dispute because it ultimately depends upon the location of the baseline, dividing internal waters from the territorial sea. The Federal government contends in general that this line should conform to the line of mean lower low tide except where it becomes necessary to enclose bays, river mouths, etc. The state's position is that the baseline may be drawn using the straight baseline method permitted by

#### Article 4 of the Geneva Convention on the Territorial Sea and the Contiguous Zone.

The landmark case U.S. v. California 381 U.S. 139 (1965) rejected California's claim that the baseline could be drawn seaward of the outer coastal islands but stated that the baseline should be determined under the terms of the Convention which in Article 4 permits the use of the straight baseline method. To the extent that the straight baseline method is adopted, the area of submerged lands under state ownership will be extended. The implications of this dispute in terms of natural resource management are apparent. The straight baseline method has the advantage of being more stable. The Supreme Court has held that the baseline where measured by the line of mean lower low water is modified whenever the shoreline is modified by natural or artificial means. Since the ultimate boundary between federal and State ownership of submerged lands is three miles seaward of the baseline, an ocean fill would add resources to State jurisdiction that were previously under federal control. It may be expected that Congress will act to fix the boundary of areas covered by the Submerged Lands Act in terms of geographic coordinates instead of shifting shorelines as recommended by the Natural Commission on Marine Science, Engineering and Resources.

#### Tidelands

Tidelands are lands generally covered and uncovered by daily tidal action. The landward limit of the tidelands normally constitutes the boundary of State/private ownership. This limit is currently defined as the line of mean high tide determined over an 18.6 year lunar cycle. The State contends that this method of measurement is unweildy and unrealistic and is currently seeking judicial redefinition.

The history of the ownership and administration of California's tidelands and submerged lands has been extensively documented and publicized. Briefly, the period from 1850 to 1879 was characterized by virtually uncontrolled disposal of public lands by the State. Tidelands were sold to the first bidders at one dollar per acre. Such lands were considered worthless in their natural state, but by draining and filling, valuable agricultural and urban land could be created. The early sales statutes never authorized the sale of submerged lands, but county surveyors frequently prepared certificates leading to the sale of "tidelands" which were in fact sub-



merged lands or navigable sloughs. In 1879 sales of tidelands within two miles of an incorporated city were prohibited in the California Constitution Article 15 Section 3. In 1909 the legislature halted the sale of tidelands completely by State general statute. Since then, the legislature has, by special act, authorized sales of tidelands in limited areas on several occasions.

Constitutional restrictions on sale of tidelands and submerged lands have not prevented the legislature from granting such lands to local governments. Early grants did not impose a public trust duty on the grantee but such a duty was later judicially implied. Grantees are normally obligated to develop the land for common law trust purposes and such other purposes as are specified in the grant. Recent grants are conditioned upon substantial improvement within ten years. A difficult issue is presented by the current realization that even water related development would not be a proper use for much of the granted lands. Probably a legislative redefinition of the particular grant is the best resolution of the dilemma.

In 1928 the responsibilities for administering the State lands were assigned to a single official in the State Department of Finance. In 1938, as a response to the political pressures generated by the discovery of oil on State tidelands, these responsibilities were again shifted to the newly created State Lands Commission. The State Lands Commission consists of two elected officials, the Lieutenant Governor and the Controller, and one appointed official, the Director of Finance. In 1969 the State Lands Commission and the Division of State Lands were transferred from the Department of Finance to the Resources Agency.

At the time of its creation in 1938, the Commission did not know the full extent of lands under its jurisdiction. Various sales and grant programs had reduced the State lands by about three million acres. Only about four million acres remained. Most of the tidelands disposed of were in ecologically sensitive bays, river mouths, and estuarine areas. The State Lands Commission has not succeeded in ascertaining the boundaries of its holdings. In 1970, over thirty years after its establishment, the Commission reported that of 6,939 miles of shoreline, only about sixty-three miles of boundary had been legally established.

## Regulation of Tidelands and Submerged Lands.

The federal government exercises exclusive regulatory authority over federally controlled submerged lands on the outer continental shelf (e.g., the lands not transferred to the states under the Submerged Lands Act). The principal detrimental activity which might be conducted on these lands would be the extraction of oil and minerals.

Principal regulatory authority over submerged lands and ungranted tidelands within the "three mile limit" is vested in the State Lands Commission. The Army Corps of Engineers in administering legislation based upon the federal navigational servitude over navigable waters also exercises a significant regulatory effect. The authority of cities and counties over such lands varies depending upon whether they are in State, local or private ownership.

### State Lands Commission.

As mentioned earlier, the State Lands Commission has no authority to sell submerged or tidelands; however prior to 1970 the Commission had virtually unrestricted authority to lease such lands. In 1970 the legislature required that no future leases be executed by the State Lands Commission until an environmental impact report has been prepared. Non-extractive leases are issued for terms varying from one to forty-nine years depending upon the nature of the lease. Fees are not charged to public agencies but a rental equivalent to 6% of the fair market value of the land is collected for other leases.

The Commission may permit the dredging and filling of State-owned submerged lands and tidelands for improvement of navigation, reclamation, flood control or as an incident to permitting the construction of groins, seawalls, bulkheads, etc. on such land. The Commission may issue a permit and collect rent for allowing littoral owners to build groins, jetties, and bulkheads on State-owned lands. The statute provides that such structures shall not unreasonably interfere with public trust uses.

Despite the pressing need for a comprehensive program of ownership determination, the Commission has been unable to obtain the funding necessary. It has barely enough resources to respond to quiet title suits brought by private claimants.

The continued uncertainty regarding the precise location of the boundary between State-owned tidelands and other lands is, on balance, detrimental to the public welfare. In some flagrant cases the clouds on title deter development because title companies are unwilling to insure against adverse State claims. On the other hand the State is losing the opportunity to eject or collect rent from encroachers. Conservation groups may purchase environmentally unique lands only to find that they are already owned by the State. Furthermore, a recent case announced that where public officials have knowledge of an encroachment, yet allow development and provide services to unwitting purchasers who make substantial investments, the State or local grantee may be denied the privilege of asserting an adverse claim. The legal theory applied here is not adverse possession but equitable estoppel or conduct similar to fraud by public officials.

The legislature has given the State Lands Commission broad powers to exchange State-owned tidelands and submerged lands for publicly or privately owned lands. The exchange must be in the best interests of the State for one of the following purposes: improvement of navigation, aid in reclamation, flood control or "to enhance the configuration of the shoreline for the improvement of the water and upland." So long as the exchange does not substantially interfere with the public trust and equal values are given and received, the public agency or person receiving State lands may fill and improve them, and upon resolution of the Commission, they become free of the public trust.

#### Regional Water Quality Control Board.

The ABAG coastline is located primarily in Region 2 of the nine-region State water quality control system. Basically the regional board is empowered to establish discharge requirements for all new and existing facilities which discharge waste into waters of the region. The board exercises no control of structures per se. Discharge requirements are required for major dredging operations. Very recently certifications from the regional board have been required by the Army Corps of Engineers before federal permits will be issued for projects involving fill of navigable waters. The Corps will not issue a permit unless the regional board certifies that the proposed fill will not cause a violation of established water quality standards.

## U. S. Army Corps of Engineers.

The Army Corps of Engineers requires a permit for any dredge, fill or structure in navigable waters. Under current regulations a permit would be required for any such activity which extends below the line of mean higher high water. Corps permits are required regardless of whether other government agencies are exercising concurrent permit jurisdiction. Before granting a permit, the Corps requires that local (city or county), regional (Water Quality Control Board or BCDC) and state (State Lands Commission) permits be obtained.

The criteria for evaluating proposed structures and fills has been expanded. In Zabel v. Tabb the court upheld a rejection by the Corps of an application to fill tidelands in Boca Ciega Bay, Florida, for the construction of a trailer park. The rejection was upheld even though the proposed fill would not affect the navigational capacity of the bay; the primary ground of refusal was damage to the marine environment.

The Council on Environmental Quality has interpreted the National Environmental Quality Act to require preparation of an environmental impact report for projects involving a federal permit. The Corps has added an environmental section to prepare such reports.

Prior to conducting a public hearing on proposed projects, the Corps notifies appropriate federal, State and local agencies. Hence, if the city or county has not previously imposed a permit requirement, it has the opportunity of communicating its position to the hearing examiner in advance of the public hearing.

## Cities and Counties.

Cities and counties can exercise various degrees of control over tide and submerged lands depending upon the location and ownership of such lands.

County political boundaries normally extend seaward three miles from the coastline. Gov't Code 23075. City boundaries may be extended into adjacent tide and submerged lands, but such annexation must be approved by the State Lands Commission. The State Lands Commission attempts to create seaward boundaries at right angles to the shoreline



but will use other solutions in view of such factors as "the effect of such offshore or submerged lands annexations on the uplands of the city and adjoining territory, and the existing and potential boundaries of other cities and of unincorporated communities." Cal.Gov't Code 35014. The Commission determination of offshore annexation boundaries is conclusive; LAFCO review is specifically excluded. Annexation of offshore lands can either help or hinder the annexation of adjoining uplands. The Commission valuation of State owned offshore lands is conclusive and is included in the computation of the total valuation of land to be annexed. If the public and private owners of one-half the value of the territory to be annexed protest then annexation proceedings must be stopped. Cal Gov't Code 35313.

Annexation does not, of course, affect the title to offshore lands. If a community incorporates, title to tidelands and submerged lands within its boundaries which has been previously granted to the county will not pass to the city without specific legislative authorization. Cal. Pub. Res 6310.

The scope of local authority to regulate private lessee on State owned lands within the political jurisdiction of cities and counties is unsettled. Public Resources Code 6301 gives the State Lands Commission "exclusive" authority over all ungranted, unpatented State lands. Probably, local police power regulations may be imposed to the extent that they do not conflict with the policies of the Commission. In some areas, the Commission decisions undoubtedly pre-empt local police power regulations.

Where privately owned tidelands are within the political boundaries of a city or county, the full scope of police power regulations may be exercised. In addition, the State has reserved a proprietary interest in all such lands by virtue of the public trust. Marks v. Whitney 6 Cal. 3d 251, 98 Cal. Rptr. 790, 491, P. 2d 374 (1971).

The State Lands Commission administers the public trust. It is probable that the Commission will give strong weight to local plans and regulations in determining what uses are consistent with the trust for a particular site.

Possibilities for local control of offshore development is greatest where the land has been granted in trust. Grantees are prohibited from selling but can lease or issue franchises on the

land. The original purpose of the grant system was to enable cities and counties to promote development of harbors and other offshore areas according to their own plans. So great has been the legislative desire to stimulate waterfront development that recent grants contain provisions which will cause a reversion of title to the State if substantial development has not occurred within ten years.

By 1970 the legislature had begun to reconsider the wisdom of entrusting control of extensive offshore areas to cities and counties. Local governments were required to inventory all existing uses and report all deviations from the terms of the grant. In addition, localities were required to identify environmentally unique lands and devise a plan and regulations for implementing the plan. This local program coincides with a Statewide inventory and identification of environmentally unique lands by the State Lands Commission. Pending completion of the inventory and plans the legislature has declared its intent not to make further grants.

In 1970 the legislature also increased the participation by the State Lands Commission in the administration of all outstanding grants. Lessees and other third parties were informed in effect that their interests might not be protected if grants were revoked unless Commission approval were obtained for all new leases, major improvements or fills. It is doubtful whether this legislation adequately treats the many problems created by the grant system. There is still uncertainty regarding the power to revoke. Some are of the opinion that a legislative act would be required. Despite occasional instances of flagrant mismanagement (e.g., the Long Beach Queen Mary affair), the State has not actively sought large scale grant revocation. In the past, where a locality has attempted to authorize structures not listed in the terms of the grant the legislature has intervened to amend the grant.

Under the present law the State Lands Commission must not approve the lease unless it finds that the lease complies with the terms of the grant and is in the best interests of the State and that the lease proceeds are to be used for an authorized Statewide purpose. Even if the Commission makes an adverse finding, the project or lease may still be executed. The provisions are effective only if there is a credible threat that the grant might be revoked. If previous legislative behavior is any guide, this threat is an idle one.

## California Environmental Quality Act.

Under the California Environmental Quality Act, all agencies of State government are required to prepare an environmental impact report for all proposed projects which may have a significant effect on the environment. As discussed earlier, the act itself does not make clear whether private persons who apply for permits or leases must prepare such reports. Public Resources Code 6371 remedies this defect in one limited area: it requires that the State Lands Commission "shall not lease any of the lands under its jurisdiction unless it shall have made a finding at a public meeting that such lease will not have a significant detrimental effect and shall have made an environmental impact report which shall be available to the legislature and to the public." This section imposes not only the procedural requirement of disclosing all adverse effects, but also places a substantive limitation on the authority of the Commission to issue leases: it may not approve the lease (or by implication, the lease extension) if the lease will entail a significant detrimental impact.

Cities and counties which undertake projects on granted lands must make a finding that such project is in accord with the conservation element of the general plan.

Obvious gaps in the coverage of the environmental impact report system includes fill projects proposed on lands currently under lease from the state and projects undertaken by lessees of granted lands. Although not required by State legislation, impact reporting requirements could probably be imposed in each of the above cases consistent with the policy of the act.

## Implications.

The extensive authority of governmental entities over submerged lands and tidelands has important implications for the control of development inland. Presumably, water-related industrial uses can be discouraged by refusing permission to create piers, wharfs, etc. Residential construction might also become less attractive without marinas or direct access to the ocean. Further, residential development becomes less attractive if the public is assured access to the tidelands thereby raising the probability of intensive recreational use by others than those who buy in the subdivision.

### Lands Above Mean High Water.

The lands above mean high water can generally be divided into beaches, lands from the beach to the coastal highway and lands from the crest to the coastal hills. These divisions have no significance in terms of governmental jurisdiction, but at least in the case of beaches, the areas may be distinguished in the scope and intensity permissible regulation. In the beach area, regulations might be imposed which prohibit development - in the other areas, less stringent applications of the police power such as the imposition of development standards would normally be more appropriate.

Most of the beach areas above mean high water are privately owned. The public trust, as presently conceived, does not extend landward of the mean high water mark. Therefore regulation of detrimental activities threatening this area must rely exclusively on the police power (e.g., zoning, subdivision regulation, and the like) unless privately-owned land is acquired by eminent domain or voluntary purchase. An application of the legal analysis outlined by Professor Heyman in Powers Vol I, a report prepared for BCDC, would support regulations outrightly prohibiting development in the beach area. Such a result would ultimately rely on a demonstration of hazards to occupants of structures from storms, flooding, etc. and of harms to fragile ecological values that exist on and around the beach areas. These include plant life important to the maintenance of the beach. If the reason for prohibiting development is patently to provide public recreation opportunities on the beach, the probability is great that the regulation would be invalid and that acquisition would be necessary.

### Public Access

The inaccessibility to the public of State-owned tidelands has become a matter of general public concern. The public has a right to use State-owned tidelands for transient recreation; but if members of the public cross privately held uplands without permission, they are liable in civil trespass unless they can show that an easement has been dedicated to the public under the common law doctrine of implied dedication.

Permitting large parcels of privately owned uplands to be developed without reserving adequate public access to the shoreline would be a loss difficult to remedy. The Dunlop Act requires the provision of reasonable public access by a subdivider



of a subdivision fronting upon the coastline. If strongly enforced, the Dunlop Act can secure some public access. Unfortunately the act does not cover land used for non-subdivision purposes. Therefore such land is subject to access easements only under such other dedication principles as may apply.

Easements created by implied dedication can provide an effective means of securing public access. The Gion and Dietz cases did not reveal who should hold the easement on behalf of the public. In Gion the city was so designated; in Dietz no easement holder was designated. Recent legislation enables coastal land owners to prevent future dedications from arising by simple publication or posting procedures. Although existing easements could not be cut off it is important not to delay in confirming these public rights. Conservation groups cannot be expected to bring enough suits to confirm a significant number of public easements to the beach. The State Lands Commission has no general statutory duty to make State-owned tidelands accessible to the public. If the Commission sells or leases uplands fronting navigable water, it must reserve a public easement if no other convenient access is available. If inaccessible public land is for sale, the Commission may negotiate purchase or condemn an easement from adjoining owners in order to facilitate sale. Beyond this, the Commission appears to have no authority to purchase land for the State.

#### Existing Market Allocation System

The coastal area has become increasingly accessible as the highway system has expanded and the population has become more mobile. Because the present market value of any coastal parcel is a function of the mix of resources, their possible uses, and the degree of accessibility, the result has been continually-rising coastal land values. These values have recently risen to the point where most coastal open space land uses cannot afford to remain.

In this situation, there are four factors that will determine future land use in the coastal area: 1) the degree of accessibility and public services present; 2) the relative rent-paying ability of potential users; 3) the magnitude of the demand for land by each use; and 4) the system of allocating coastal lands, waters, and other resources among competing users. The resource allocation system as presently constituted tends to favor conversion of coastal lands from open space uses to residential, industrial, and commercial development.

There are several shortcomings of the present resource allocation system that have a profound effect on public and private use of the coastal area, and of the shoreline in particular. Each involves questions of equity; the first two in the present, the third in the future.

1. The present system does not properly place a price on many coastal resources, and hence, their true value is not reflected in the market. At present, there is very little attempt to include all external costs in the accounting systems of land and water users, and the result is the public being forced to bear costs that rightfully should accrue to the resource user.
2. The present system does not adequately reflect the true value of some public uses of the coastal area. Hence the public's buying power in the market is diminished.
3. There is no consideration in the present system for the possibility of future scarcity of coastal lands, waters, or other resources. Hence, they are not adequately reflected in the market.

The present market allocation system of coastal resources is not purely private. It has been influenced and modified by government in the attempt to keep it from being diverted from socially and environmentally desirable purposes in the public interest. Government also enters the market directly by acquiring title to lands and dictating their use, as in the case of parks, beaches, and military reservations. Moreover, government has influenced the real estate market through investment in public service facilities such as roads and utilities, which generate increases in land value in the areas served.

#### Infrastructure

Public investments in infrastructure – services to private and public development – constitute perhaps the primary factor that has shaped, and will continue to shape, the pattern of land use in the coastal area. This public investment in infrastructure is important, because its activities may be controlled and directed. Public investments are committed on the basis of public policy – either express or implied, intentional or accidental – as to the type of development and coastal environment desired.

Large-scale development has a high degree of dependency upon public investments in infrastructure, and particularly upon accessibility, water supply, and sanitary sewer service. The availability, or even the promise, of these services increases the potential uses of the land, resulting in land value increases that exclude many open space uses from the market. The provision of these services acts as a catalyst to development and the expansion of urban areas. Once development has begun in response to the availability of public services, another round of growth begins, along with pressure for expansion of public services, and the once-open nature of the coastal area recedes even further into the region's past. It is clear that public investments in services should be positive instruments of public policy to achieve conservation and development goals of the coastal area.





### III. REGIONAL COASTAL PLANNING POLICIES

#### GENERAL GOAL AND POLICY FRAMEWORK

Policies for the region's coastal area reflect the existing conditions discussed in Chapter II, problems and pressures growing out of those conditions, implicit and explicit local government objectives, and the premise that the ABAG Ocean Coastal area – including the animal and marine life and natural features – is an irreplaceable resource. Hence, the primary goal of the coastal element of the regional plan must be to ensure conservation and enhancement of this unusual set of resources for use and enjoyment of present and succeeding generations.

In response to conditions, pressures, and the basic coastal perspective noted in Chapter II, policy positions have been identified in five basic areas: conservation, environmental quality, open space, urbanization and development and resource utilization. These are given locational definition based on configuration of existing urban development and recognition of open space values. Of these five basic policy areas, "conservation" and "environmental quality" relate to all use or activity types within the coastal area regardless of their occurrence in a designated open space or growth locale; the "open space" policy has greatest relevance for areas of documented open space value; the "urbanization and development" and "resource utilization" policies speak most directly to those specifically identified areas where urban activities would not conflict with open space values.

The following are the goals determining policy in each of these areas.

**CONSERVATION** of water, land, energy, plant nutrients, and living resources;

**ENVIRONMENTAL QUALITY** of air, water, land and amenity resources;

**OPEN SPACE** as the dominant use of the coastal area, enhanced and protected to ensure retention of the existing coastal character;

URBANIZATION AND DEVELOPMENT activities and patterns oriented to the coastline and ocean and structured and directed to reflect open space values;

RESOURCE UTILIZATION discouraging misuse, waste, or environmental degradation and promoting rational and compatible use of coastal resources.

Additionally, decisions relating to activities or use within the region's coastal area must additionally reflect two guiding principles: first, that natural processes are ongoing and dynamic and natural resources are finite and perishable; and second, that there is a threshold above which a use or activity begins to degrade the quality of a resource and diminish its value.

### Conservation

Conservation policies must identify elements critical to the coastal environment and suggest administrative practices essential for their conservation. Limited coastal resources must be retained to ensure the continued substantial economic, social, and environmental benefits which the region now derives from them. This implies planned management of basic natural resources to prevent their exploitation, neglect, or elimination.

The coastal hydrologic regimen plays a critical role in the ability of the coastal area to support the entire spectrum of human activity. Equally significant is the overwhelming contribution of that system in continually shaping and enhancing the physical coastal environment and in providing some of the principal coastal amenities that define and distinguish the coastal setting. Therefore, to ensure the continuation of these attributes, water regimen stability must be sought through management of vegetative cover, surface water runoff patterns, and natural patterns of ground water recharge within both major and subcoastal watersheds. Moreover, natural erosion and transport of beach materials from coastal watersheds into the coast's littoral circulation system – the process through which beach replenishment is achieved – must be protected. Ultimately, it is only through careful consideration of the physical impact of an activity or development on water regimen within a particular locale that water conservation, and therefore much of the characteristics of the coastal setting, can be insured.

The conservation of land also must be treated carefully and in several ways. Initially, because of the limited availability of the coastal land supply, any use of coastal land must be carefully considered with regard to its dependency on a coastal setting. But since the coastal setting is strongly defined visually by existing landforms and the juxtaposition of land and water elements, it is the landform that thereby becomes one of the single most important elements in the region's coastal area. For this reason, any alteration must be seen as reducing the inherently attractive natural setting, with potential consequences both for denigrating the perceived quality and amenity of the coastal area.

In addition to conservation of land form, soils of high agricultural capability exist and significantly contribute to the open space coastal character and its economy. Hence, they must be maintained at the same high level and not be allowed to degrade through poor soil conservation practices and premature usurpation by uses which could locate economically elsewhere.

Both the biotic and abiotic resources of the coastal area, including animal and marine life and sand and mineral deposits, contribute to the physical stability and character of the coastal setting. They must be preserved and protected from reduction or exploitation that negatively impacts their interaction with the coastal environment.

Conservation of resources also must be practiced directly through reclamation and reuse of organic wastes, favoring such natural purification methods as land effluent spray techniques. The discharge of plant nutrients from the land to the aquatic environment, principally through use of agricultural fertilizers and pesticides, also must be minimized to prevent adverse impact on water quality.

Finally, as part of a total consideration of conservation, efforts must be made to minimize the consumption of energy resources. In this way, the effects of energy dependency within the coastal area may be reduced - including the impact of the increasing numbers and use of private automobiles on coastal air quality and the impacts on systems of energy transportation via pipelines and transmission lines through the coastal area.

## Environmental Quality

Identifying primary elements which must be conserved to maintain the desired coastal environment is an initial step in the coastal planning effort. The logical next step is to begin identification of the policies needed to maintain the quality of the coastal environment.

Concern for the coastal environment must consider current and potential uses and activities and must recognize that any use may have both a positive and a negative impact. Overall, no use of any coastal resource should be allowed which damages or degrades that resource and which, in turn, negatively affects the coastal character.

High air quality standards must be established within coastal air basins to limit the emission of air pollutants. However, a basic policy of achieving high air quality must not be limited to merely setting air quality standards, but also must be sought through careful planning of the location and arrangement of land uses, population settlement and density, and performance criteria in those coastal areas where climatic and topographic factors are conducive to airshed pollutant concentration.

The considerable significance of discrete land and water elements must be recognized in the establishment of standards which relate first to the allowable impact which may be brought about and, second, for the allowable activity or use proposed for that resource.

The concern for the quality of the coastal waters requires that standards be set with regard to the use of water as a sink for receiving waste materials. These standards must be based on a policy which requires that no solid or liquid waste discharge will be allowed which contaminates, damages, or adversely affects the coastal water resources or the aquatic environment, generally including all marine life, riparian formations, and intertidal and subtidal plant communities, but with special reference to highly productive natural habitats including marshes, mudflats, lagoons, estuaries, lakes, bays, and anadromous fish waterways. The continued utilization of surface and ground waters requires that standards be established to insure maintenance of the resource in a quantity and at a quality that effectively eliminates the threat of depletion or pollutant concentration.



Finally, there must be control of those land use activities which degrade water quality and affect the siltation of lakes and impoundments and the sedimentation of waterways. The use of chemical agents, particularly pesticides and heavy metals, that concentrate in the food chain and interrupt or destroy the primary biological network or threaten specie survival, should be prohibited or rigorously controlled and monitored.

The preservation of the natural landform assists in the maintenance of the coast's critically important hydrologic values and retains significant scenic, educational, ecologic, and historic features and areas. While unique features of the coast must be preserved, substantial energies must be directed to the preservation of those elemental landforms which characterize the coastal area, including coastal terraces, steep cliffs, rolling uplands, and the natural landscape vegetation. Major alterations of the coastal landscape or seascape should be prohibited unless overwhelming public need or benefit can be shown.

In maintaining the quality of the coastal environment, the role of transportation systems must be carefully defined. Specifically, views from major travel corridors both to the shoreline and to adjoining upland areas should be provided where it is possible to do so without preempting or adversely affecting the agricultural, recreational, or natural habitat qualities of coastal lands. In addition, views of the road itself from the shoreline, from major public areas within the coastal area, and from the ocean itself, must be complementary to the coastal setting and must respond to the natural configuration and values of the landform, shoreline, vegetation, and other elements within the marine and aquatic environment.

Within the broad area of concern over coastal amenities, a further range of elements must be considered. An essential policy is that any development in a coastal rural, wilderness or open space area must be fitted into the natural surroundings so that its presence is subordinated and the pre-existing character of the environment is maintained.

Along with subordination to coastal character, the design and appearance of all public and private development - including residential, commercial, industrial, agricultural, recreational, and infrastructural - not only must reflect but

also must enhance the coastal character. The variety of urban appurtenances – whether or not they appear in a totally urban milieu – must be designed and sited in a manner which clearly subordinates them within the immediate setting and as seen from major visual corridors. Such appurtenances include roadway and building signs, traffic signals, overhead wires, and telephone and lighting poles. In the attempt to maintain coastal character and subordinate activities and uses to the natural setting, it becomes necessary to deal with the problem of noise pollution by the setting of standards, by the prohibition of vehicles and devices which generate significant noises, and by the designation of special trucking or service corridors. Particularly in or adjacent to recreation areas, marine and wildlife habitats, and rural and wilderness areas, significant noise emissions caused by automobiles, dune buggies, motorcycles, trucks, power boats and power equipment should be eliminated.

### Open Space

Open space serves a vital ecologic health and diversity. The retention and enhancement of the existing open space nature of the coastal area is a positive means for retaining the high levels of quantity and quality of coastal resources, while at the same time retaining maximum options for the future use of the coastal zone and its resources.

The majority of the benefits now derived from the coastal area relies in large part on its open nature and the variety of amenity and accompanying sensory experiences. Open space can serve many purposes, both in single as well as in multiple use. For example, it can serve as a wildlife habitat, protect persons and property from environmental hazard, help assure continued water resources, provide a place for agricultural and recreational activities, give form to urban places, and provide diversion in the form of types of amenity and experience, including scenic beauty.

Open space can represent, among other things, a nearly-continuous system of wildlife habitat serving the needs of an extremely diverse collection of wildlife communities, both terrestrial and aquatic. Preservation and multiple use of wildlife habitats, as appropriate, will help assure perpetuation of these resources and their economic and spiritual benefits.

Open space should be maintained as a protection to persons and structures from sites and entire areas whose development or alteration would pose a hazard. This includes areas that are themselves subject to severe environmental hazards, especially flood and landslide-prone areas, high seismic risk zones, and steep slopes or areas subject to cliff erosion and seismic sea wave inundation. In addition, areas whose development or other alteration would pose a hazard to persons or existing structures in other areas should be maintained in open space. This situation includes breakwaters that interrupt the normal littoral transport of beach materials, or lands whose development would increase run-off and sedimentation in a watershed, among others.

To assist in assuring that the quantity and quality of the public water resource is maintained at the highest possible level, woodland watersheds, as well as ground water recharge areas and other areas having a direct bearing on these resources, should be maintained in open space. In addition, in those areas where water conservation practices would not be adequate to stabilize the water regimen under the impact of development or other alteration, sufficient open space should be maintained to permit these practices to be effective.

Production of food and fiber is an important part of the economy of the coastal area. The combination of resources that make this production possible, on land and in the sea, are unique to the coastal area for the most part, and some of these products may only be grown or harvested in or near the coast of this region. The areas possessing these resources, including areas of established crop production and those with high potential for coastal-dependent specialty crops and for grazing, as well as those with potential for maricultural activities, should be maintained in open space.

The need for adequate open space is demonstrated clearly by the high degree of use of existing coastal parks, beaches, and campgrounds, as well as the frequent incursions on private lands for camping, hunting, and other recreational activities. Hence, in addition to the visual amenity afforded, further provision must be made for active and passive recreational pursuits on both public and private lands and water areas, as appropriate. The open space system available for recreational use must recognize the need for diversity as well as a locational balance of opportunities that may provide open space

areas within and adjacent to urban areas as well as in more remote locations. The needs are as varied as the population and their diverse places of residence. Public access should be secured to areas of high coastal amenity. Areas suitable for the enjoyment of outdoor recreation, including more passive forms, such as appreciation of scenic beauty, should be evaluated to determine their most appropriate function and level of use, and managed to prevent their degradation.

Open space also should be used as a positive instrument of public policy. Open space should be used as a buffer between incompatible land uses in both urban and rural settings, and should be maintained in sufficient quantities within and between developments to protect and enhance local community character and identity, articulate urban structure, and guide the physical shape and direction of urban growth.

#### Urbanization and Development

While the focus of these policies is principally on growth, an activity or use clearly must satisfy environmental impact policies as well. Overall, policies for urbanization and development must identify and define the relationship between an activity and its subsequent location. The basic element and cause for concern within this relationship is the impact which a use or activity may cause or encourage within a specific locale.

The preeminent urbanization and development policy is that urban uses be directed to appropriate existing and potential urban centers and strengthen the desired pattern and character of regional development. Conversely, an activity whose location and intensity is not consistent with this policy should be excluded.

To amplify further this locational policy, standards must be established which will provide both a recommended and a maximum level of development or use within non-growth areas. Thus, even traditional open space activities, particularly recreation and agriculture, must be monitored and carefully defined to ensure that these uses truly enhance coastal character and are not the very development catalysts being precluded from nongrowth areas.



Because a principal policy of coastal planning relates to conservation of natural resources and preservation of open space character, it is important that even within a growth area, such policy be applied directly and recognize the requirement for retention of identified open space values. Open space use must not be diminished solely because it occurs within a growth area.

In those areas where urban uses are allowed, locales of significant coastal amenity should be reserved for activities or facilities that both require such amenities and that maximize benefits derived from it. The application of this policy recognizes that there is a hierarchy among potential users at specific locations within the coastal area. To generalize with a basic example, a lot with a sweeping ocean view within a designated growth area would be less suitable for industrial than multi-family residential use because a greater number of people could participate in, and benefit from, the amenity. Similarly, due to the intensity of existing surrounding uses, this site could achieve its best use in public ownership for urban park purposes.

As an integral part of structuring and directing the urban pattern - and therefore coastal land and water use - to satisfy basic urbanization policy, particular policy positions must be taken with regard to timing of development, the role of infrastructural elements, and requirements for urban design and performance standards.

Particularly within areas designated for growth, development must be time-phased to avoid public expenditure in fragmented facilities and services necessitated by premature subdivision and to ensure that growth occurs consistent with regional growth policy. Sequential planning and development allows the reservation of these undeveloped lands and provides maximum flexibility for future land use decisions. The concern with public expenditure also must be guided by a policy that private development which creates a demand for public expenditure be authorized only if such development and expenditure satisfies regional growth policy and is consistent with phased development plans.

Because of the catalytic effects upon urban development of public and quasi-public service facilities - particularly roads, water supply, and sanitary sewage systems - the location and

timing of these services must complement expressed growth/non-growth policies and be used as a tool to assist in the preservation of open space values. Similarly, the location, intensity and extent of harbors, ports, and maritime facilities must respond to these basic development policies.

A strong coastal relationship must be evidenced in the siting and design of development within the coastal area and standards applied equally to public, quasi-public, and private development. Within growth areas, urban structures and form should be articulated to enhance local character and identify and complement the coastal setting. Urban areas must be considered an element within the broader coastal environment by maintaining and integrating natural open space within the urban setting, and by utilizing the existing natural form and features in siting for all types of development and use. In this regard, it is proposed that design alternatives vary with the setting and that the appropriateness of design be measured by compatibility with site conditions. Additionally, in response to policies regarding energy conservation, community and building design criteria must reflect climatic conditions, thereby providing economic as well as conservation benefits.

#### Resource Utilization

Resources constitute a depletable reserve of wealth to any region. The type and degree of utilization determines the benefits that accrue to society from their use. A goal for the coastal area relates to conservation of water, land, energy, plant nutrients, and living resources. This goal defines resources in broad terms, including all that can be used for the benefit of residents, visitors, and neighbors, with the exception of human resources. This includes land and water, as space, as well as the specialized ways in which their components may be utilized.

The ultimate goal of coastal planning is to promote rational and compatible use of coastal resources. This goal is similar to many definitions of conservation - promoting a "sustained yield" from the land, and maximizing future options. It follows that misuse, excessive intensity of use, waste, and degradation of any coastal resource should be avoided. This means that land uses and other activities involving use of coastal resources should respect the coastal environment - in conformance with the principles discussed above under "Environmental Quality" - and should strive to conserve those

resources by all available means, some of which have been detailed above under "Conservation".

Opportunities and practices for resource renewal and reuse should be sought. For example, this leads to reclamation and reuse of water resources that should replace, whenever possible, systems that discharge all wastewaters directly or ultimately to the ocean. The harvesting of any resource for scientific, recreational, or economic purposes should be consistent with the concepts detailed under "Conservation" and "Environmental Quality", above, especially with regard to depletion or degradation of the resource.

Agriculture and forest resource extraction activities should be consistent with these concepts, especially with respect to the conservation of soils, land, landform, natural processes, water and watersheds, nutrients, wildlife habitats, and use of pesticides. Similarly, the utilization of marine resources, through mariculture, kelp harvesting, and sport and commercial fishing, also should reflect adherence to these concepts with regard especially to their support facilities, to resource and habitat depletion, and to compatibility with other uses.

The extraction of mineral resources of various types, for use both within and outside the coastal area or surrounding region, presents a special set of problems, since utilization of these resources is consumptive, and the resources are non-renewable. These activities also are more disruptive of land than most other uses, and hence pose special problems of compatibility with other uses and activities, in both urban and rural areas.

Oil exploration and extraction operations should be monitored regularly to ascertain environmental impact, including seismicity, subsidence, water pollution, and habitat degradation. Similarly, the excavation and storage of sand, gravel, and other earth resources should be permitted only when these activities conform to conservation and environmental quality policies, particularly with regard to sedimentation and beach replenishment processes, anadromous and marine habitats, maintenance of water quality, preemption of shoreline areas, vegetation impacts, and visual amenity.

The multiple use of open space lands should be maximized to promote the conservation of land resources and to increase habitat and public safety and recreation, scenic, and resource utilization benefits. The interrelationship of these uses should preclude the diminution of one use or activity by another.

## LOCATIONAL POLICIES

Two types of locational policies are set forth in this section, each a translation of the general framework of policies in the preceding section into policies directly applicable to various coastal areas. First, the open space policies recommend retention of identified lands and water in one or more of the following open space uses: natural habitat, agricultural (either prime agricultural land or grazing lands), and open space recreation. Additionally, they designate lands to remain in open use because of severe hazard to life and property. The second policy indicates broad areas of the coastline, which should remain in open space use and those within which more intensive development may be permitted.

### Open Space Policies

The mapped open space areas include those areas having: 1) specific open space values to be protected and utilized in a manner consistent with their value; or 2) severe hazards to structural development that should not be developed. Selected and appropriate information from the data analysis, detailed in the Appendix has been used to determine both the areas of highest open space value and most severe hazards to structural development.

Factors considered in this determination of areas with open space value include the following: a) significant marine and coastal wildlife habitats and adjacent impacting areas of each; b) public recreational resources; and c) prime coastal-dependent agricultural lands, including those having a recognized potential for grazing use.

Factors in the determination of environmental hazard areas included the following: a) severe relative hazards to structural development, from an analysis of slope, response of earth materials to seismic disturbances, slope stability, and flood hazard, including seismic sea wave hazards; and b) areas with slopes steeper than 50%. These are areas that generally should be precluded from structural development.

The consistency with which these open space values appear throughout the coastal area emphasizes the need for viewing them in an overall rather than a narrow perspective. Specific application of the concept of diminished value - whereby the threshold of intensity of use is breached and a use or activ-



ity begins to degrade a resource - can only be satisfactorily conceived in a region-wide view when the totality of available resources is considered.

Much of the coastal area provides evidence of the interplay between the various open space values and the areas of hazard to public safety - the latter sometimes so extensive that they overlap recreation areas. Further, there is often a network of high habitat values that is concentrated along the shore and reaches inland in a fine web along the stream channels to spread throughout the coastal area.

The use of open space to achieve and complement urban form becomes especially important in the transitional zone between an open and an urban area. For example, development in the mid-coastside of San Mateo County conforms reasonably well to the natural setting, articulated both by the undeveloped upland area and the agricultural usage immediately surrounding much of the development. The contrast in the use of open space between this area and the area occupied by Pacifica and Daly City is obvious. Views are interrupted by strip development and there appears an abrupt abrogation of concern with the coast and the coastal character. Application of policies regarding the relationship between a developed area, the preservation of public views, and the subordination of urban structures and appurtenances to natural form and setting clearly are in need of expression here.

Maintenance of the quality as well as the quantity of this land is one of the most significant policy recommendations for this area and must be aggressively applied to assure continuation of the areas' production of coastal dependent crops. Attempts to decrease either the availability or quality of viable agricultural land should not be allowed, since there is a minimum acreage below which any crop can be economically farmed; even relatively minor withdrawals from the agricultural land supply can have significant ramifications for retention of coastal agriculture.

#### Growth/Non-Growth Policies

The general policies described in the preceding section have been used in combination with the environmental data and analysis to define "growth" and "non-growth" areas. The

Growth/Non-Growth Policies Map is shown in combination with the Open Space Policies Map to illustrate the interrelationship of these two key locational policy designations. The identification of Growth and Non-Growth areas has been limited to a consideration of the primary coastal area, inasmuch as it is within this area that actual land use and activity is of greatest concern.

Generally, areas which should remain primarily in open space uses have been accorded a "non-growth" designation and those areas within which more intensive use and development may be permitted have been designated "growth" areas. In both instances, however, any use or activity must be consistent with other policies and criteria in this plan, as well as those established by existing governmental units and agencies.

The growth and non-growth designations are intended to serve two purposes: First, to provide the basis for broad land use zoning; second, to serve in the review and regulation of public and quasi-public facility improvement programs. Thus, these designations provide a key policy base for whatever agency or level of government is assigned the responsibility for coastal area planning and development review.

The concept of growth/non-growth is based on the recognition that lands of open space value must be retained in open space use if the desired coastal character is to be maintained. This basic coastal character is defined by the presence and combination of resources within the study area. It is not intended that development occur throughout the growth areas irrespective of the open space values shown. Rather, growth must only be allowed which respects and is generally compatible with these values. Similarly, within designated non-growth areas, limited development may be permitted where it directly relates to and is compatible with recommended uses of the open land or where the development, though not directly related to the open space values, provides the best means for safeguarding these values. Specifically:

Growth Areas as represented include existing major urban developments, areas where there is little significant conflict with open space values, and where high levels of accessibility and public service now exist, whose growth would be compatible with the policies detailed in the General Policies Framework. Designated growth areas are neither recommended for development nor do they imply that open space

values encompassed within them must be sacrificed to development. It must be explicitly recognized that any decision regarding the urbanization or development of an area indicated for growth must reflect numerous other considerations, including the occurrence of high or moderate hazards to public safety, grazing use potential, time-phasing of development and public services, current use as it relates to the maintenance of open space values, city and county general plans, local recreation values, social implication, and a series of additional constraints that must accompany any major land use decision. Any development that is allowed within growth areas must do so in combination with identified open space values and must complement, and not subsume, those resources.

Within the growth and non-growth areas are more specifically detailed the maximum degree and location of those growth and non-growth areas according to the following types:

1. Further development prohibited due to severe hazards.
2. Further development limited to confines of existing settlement and subject to restriction due to environmental constraints.
3. Development permissible to a specified maximum within confines of existing settlement.
4. Development permissible to a specified maximum within general area shown.

Non-Growth Areas are indicated where open space values have been documented, where open space is to remain the principal and predominant use, and where some development may be allowed if it respects coastal character and reflects environmental and governmental policies. Further development of settlements and small communities which exist within non-growth areas should be limited to the confines of the existing developed area. The non-growth designation has also been applied to several areas where major open space value or extreme hazard to development have not been documented. In most instances non-growth policy is recommended because urbanization within these areas would place considerable pressure on adjacent open space, become a catalyst for further development, and ultimately lead to a preemption of significant coastal open space. This policy not only provides an opportunity to reserve land and thereby safeguard future options, but recognizes that development within these small and often outlying areas would greatly increase requirements for expansion of urban services, lead to an increase in pro-

perty values and taxes, and bring about considerable speculation that could in no way benefit the preservation of coastal environmental amenities.

All proposed development should be reviewed for conformance with General Policy Framework, the following Locational Policies, and the General Review Criteria detailed in the following chapter, regardless of location or type of construction.

### Locational Policies Rationale

#### Sonoma County

Sea Ranch. This area has approximately 3,900 acres of relatively flat terraces that are not in conflict either with high open space values or severe hazards to public safety. A General Plan and Specific Plan for this area, now in preparation for the County of Sonoma, will recommend that a maximum of 5,000-6,000 dwelling units be allowed. There are few high open space values or severe public safety hazards identified in this area, and higher than average design standards have been met in the existing development. Yet, even with the relatively few (less than 275) structures now in place, there are indications of severe erosion and cliff retreat.

This terrace formation is relatively stable where flat, but easily eroded where disturbed or undercut. Slope wash deposits at the bases of older and higher terraces and west of State Highway 1 are very unstable. Unmapped landslides and soil slippages occur in the area. Precise surficial geological mapping, grading controls, and locational controls should be prerequisites for any further development. A study of the cumulative impacts of future developments also is needed.

Significant seismic response will be possible in the terrace formation. This area is within 1 1/2 miles of the San Andreas Fault; other, shorter faults possibly related to the San Andreas Fault activity also are in the area. Precise mapping of faults and strict construction standards are required to mitigate possible damage from earthquake-related shaking of soils and subsoils of this area.



Coastal erosion of the terrace and some underlying formations is probable in this area. Some present erosion is increased by storm drain concentrations, and seepage from wet subsoils is related to erosion at the cliff edge. Strict controls over man-induced runoff are thus required throughout this development. Precise mapping of rates and locations of cliff erosion should be required as a basis for locational decisions.

There is possible flooding in swales and gullies as well as in low wet areas due to rapid storm water runoff from the ridge. Hence, locational controls also should be based upon runoff considerations.

Problem soils, such as those of the Noyo, Yolo, Caspar, and Baywood series occur here. These are either poorly drained or exhibit slow runoff characteristics. The result is significant seasonal and year round surface and subsurface wet areas on the flat terraces. Gullying due to development has been observed. Strict controls over the removal of vegetation, grading, and man-caused disruption or augmentation of surface and subsurface water movement is required.

The existing parcel pattern of those subdivisions already approved (1,683 lots, 90% sold), when fully developed will alter substantially the natural and open nature and appearance of this portion of the coast. An expansion of the same pattern through approval and sale of additional portions of this large holding (over 1,800 lots are pending, 5,000-6,000 is the projected maximum) would result in an even more drastic alteration of the natural setting in this remote coastal area. Traffic generated by the ultimate planned development will contribute to the overloading of State Highway 1, and the problem will be compounded as other coastal developments, both within this county and in other counties to the north, increase in size and density of development. The County is undertaking to improve coastwise access from Russian Gulch to north of Salt Point State Park by upgrading the existing County road along the ridge overlooking the coast, in an effort to alleviate traffic congestion on Highway 1. However, the problem still will remain from the intersection of State Highways 1 and 116 south of Jenner, north to the proposed County improvement. Full development of these coastal subdivisions would require the equivalent of one and one-half to two lanes in each direction in this area, which is very precipitous, has high open space value and high suscept-

ibility to coastal erosion and landsliding. Hence, development in Sea Ranch should be limited to a level consistent with the existing capacity of Highway 1, unless additional and alternate means of access to this and other coastal subdivisions is provided.

Timber Cove. Timber Cove is an existing second-home subdivision of less than 280 lots, over 55% of which have been sold or otherwise reserved, and in which less than 25% of these sold lots have been developed. The subdivision is located atop some areas of terrace formation, which is stable where flat, but is easily eroded and subject to failure where disturbed or undercut. Areas of slope wash are also likely to be subject to failure if disturbed. Unmapped landslides or soil failures probably occur in this area. Therefore, precise mapping of surficial geologic formations should be required for locational decisions and control.

This area is only one-half mile from the San Andreas Fault; hence, the terrace formation is susceptible to seismic response in event of an earthquake. Other, shorter faults probably related to San Andreas Fault activity also are present. Precise fault and seismic response mapping should be used as an additional basis for locational decisions in this development.

Cliff erosion of the terrace deposits and the underlying formations is possible. Failure of terrace cliff materials is considered to be accelerated by pedestrian impact on cliffside trails. The soils are subject to significant erosion, especially on sloping grassy areas. Gullying due to development already has been observed. Strict controls over vegetation removal, grading practices, and man-induced runoff should be instituted. Mapping of erosion rates and location also should be used as a basis for control.

It is recommended that this subdivision be allowed to proceed, albeit cautiously, with sale and construction of residences, and that it be subject to the provisions discussed above of the review process.

Ridge area north of Russian Gulch. In the area designated generally on the map, there are approximately 1,900 acres that apparently are not in conflict either with high open space or hazards reduction policies. However, the area is underlain by Franciscan sandstone which can experience slope failures under certain conditions that undoubtedly oc-

cur in this area, including steep slopes, adverse bedding dip, and removal of support at slope toes for grading and construction. Large landslides occur adjacent to this area and in the Franciscan sandstone, and many unmapped landslides also may exist within the subject area.

The area is only three miles from the San Andreas Fault, and the underlying formation is subject to greater-than-average seismic shock. Response of landslides to seismic shock is likely to be severe, triggering subsequent slope failures. Precise mapping of geologic formations and faults should be the basis for strict locational controls over any development in this area.

Due to these factors and to the access constraints posed by Highway 1 immediately to the south, as discussed above, a maximum limit of development consistent with the existing capacity of Highway 1 should be placed on development in this area. This should remain until such time as additional and alternate means of access to this and other coastal developments is provided in accord with the other policies detailed in this report.

Jenner. This small community occupies, and is surrounded by, areas posing severe hazards to public safety and is adjacent to areas of high open space value. The town is sited entirely on a massive and apparently active landslide area formed over Franciscan melange. Removal of toe support by the Russian River is probably a continuing process. Detailed slope stability mapping should be required for any additional construction in this area.

The town is approximately 2 1/4 miles from the San Andreas Fault, and seismic response may be high in the landslide and moderate in the alluvial materials. Large-scale slope failure is likely in the landslide areas due to seismic shock; very strict structural design codes would need formulation prior to allowing any further construction in Jenner.

Flood plain zoning should be instituted in the low-lying areas, because they are subject to floods from the river and from seismic sea waves. Active gullying of sloping areas is in evidence in the area; controls over the removal of vegetation, grading practices, and man-induced runoff should be instituted.

Jenner is immediately adjacent to the Russian River, the largest and most valuable river resource in the study area. The California Protected Waterways Plan has designated it as a "Priority A" waterway, meaning that immediate action should be taken to implement protective management programs. Jenner is within the primary impact zone of the river, and management for resource protection will require that development actions be controlled to prevent accelerated erosion and siltation of the river. Vegetation removal and disturbance of the soil mantle should be avoided.

Due to the nature of this area, especially the severe hazards to public safety and the high open space values discussed above, it is recommended that no additional construction be allowed in Jenner.

Sonoma Coast State Beaches Environs. (Goat Rock south to Salmon Creek). Although this area is not generally characterized by severe hazards or high habitat values it has been singled out as an area to be retained, to the extent possible, in open use. The primary reasons are the area's scenic and recreation importance. The series of State Beaches stretching from Goat Rock to Mussel Point constitute the Bay Region's most extensive natural beach resource north of the Golden Gate, and it is recommended that a compatible natural environment be preserved in the general vicinity of these beaches. As a part of a coastal scenic highway system this area also deserves special consideration. Panoramic views up and down the coast, complemented by a rural landscape of grazing lands, characterize most of the highway corridor, which forms a vital part of the coastal experience. Scattered residential development however, threatens to degrade the area. Soreno del Mar, Pacific View, and Carmet have been approved and other large scale development plans such as the Jenner Bay project are proposed. Almost without exception the relatively level lands in this area have either been sold for development purposes or are presently for sale. In several instances, such as just north of Duncan Point, residential development has taken place on the coastal side and now completely blocks ocean views from Highway 1.

In light of the high scenic and recreation importance, it is recommended that private lands on the coastal side of the highway be acquired for public use and protection of views. In the event that the monies necessary for such an acquisition program are not forthcoming, it is recommended that



rigorous controls on design and siting be required to maintain adequate views and beach access and to avoid incompatible visual relationships between the beach areas, the approaches to these beaches, and neighboring development. In either event, these same rigorous controls should be employed for the eastern side of the highway. Special consideration should be given to legal methods of requiring reparcelization of already approved subdivisions to permit clustering of development and reduction of visual and physical disruption of the natural setting.

Almost all the area is included in the second most severe hazard classification, and the adjoining hills and portions of the immediate shoreline are in the extreme hazard category. Thus it is important that special consideration be given to the potential adverse environmental affects of development prior to any further approvals. Most of this area is terrace deposits, which are relatively stable where flat, but easily eroded and subject to failure where disturbed or undercut. Franciscan melange formation is immediately upslope, and slope wash deposits probably exist over the terrace deposits. Such deposits also will be subject to erosion and failure if disturbed. Significant seismic response is possible in the terrace deposits and slope wash areas.

Coastal erosion is likely at terrace deposits and underlying deposits. Sand for beaches is derived both by natural erosion from local sources such as the terrace deposit cliffs, and sedimentation from the Russian River and Salmon Creek. Controls over vegetation removal, grading practices, and man-induced runoff should be instituted to minimize interference with the existing sediment budget and other impacts on the State Beaches.

Bodega Bay. The existing town occupies and is generally, but not completely, surrounded by lands having high open space value and severe hazards. However, there are approximately 520 acres of terrace lands above and to the south of town that do not have conflicts. Much of the present and proposed newer development in and near this town and adjacent Bay occupies sites that do not share these advantages.

The existing town straddles an area that includes dune formation, terrace deposits, alluvium, Franciscan melange, and a trace of the San Andreas Fault. Unmapped landslides probably occur on the Franciscan melange, and this formation is

subject to failure when disturbed. Strict locational controls over development are needed, and this entire area should be the subject of detailed geologic mapping as the basis for those controls.

Dunes, landslides, alluvium, and terrace materials may be subject to significant seismic response in the event of an earthquake, and specific structural standards are required to prevent loss of property and life. Dune areas will be subject to wind erosion if the vegetation cover is disturbed; soils of the Franciscan melange are highly erodible; thus, special controls over vegetation removal, grading practices, and man-induced runoff are required.

Bodega Bay contains an extensive mud flat area, which is a valuable habitat for waterfowl and shorebirds. A small area of eelgrass, habitat for the Black Brant and cormorant, still exists, and the bay supports a large assortment of shellfish. The health of the bay and its ability to continue its support of these marine resources is largely dependent on the quality of bay waters. The existing community and most proposed development fall within the primary impact zone - the area that will have the greatest potential impact on the quality of the bay. For this reason, special regulations must be developed to control sedimentation, quantity and quality of runoff, vegetation removal, and sewage discharge.

It is recommended that any further development be confined generally to the non-conflict areas shown, with minimal, if any, additional development allowed within the confines of the existing settlement area and surrounding areas occupying lands of high open space value and severe public safety hazard.

Sonoma-Marin Borderlands. This area, west of State Highway 1, and between Keyes Creek and Bodega, is presently in agricultural uses. The grazing potential is high; accessibility for the most part is not good enough to attract large-scale residential development and severe hazards to public safety occur throughout the area.

The area contains two estuaries of very high regional value - Estero Americano and Estero de San Antonio - which have been designated Extraordinary Wildlife Waterways by the State of California. They are of great importance as habi-

tat for birds and, like all healthy estuarine and coastal marsh areas, provide for important biological processes upon which a majority of marine life depend during some portion of the life cycle. Development near these areas would significantly degrade these habitats, reduce other open space values, and often be threatened by severe hazards. It is recommended that this area, consistent with the recommendations for Valley Ford, Tomales, and Oceana Marin and Dillon Beach, be designated a non-growth area and remain as a permanent regional open space resource.

Valley Ford. This small rural service center is generally occupying lands of high open space value, specifically lands of high agricultural value. It is recommended that any additional development be limited to that which is directly or indirectly serving local agriculture, and therefore related to the existing economy, and also to the confines of the existing settlement area. Additionally, small-scale commercial uses that provide services to recreational users of the coastal area would also be appropriate.

#### Marin County

Oceana Marin and Dillon Beach. Oceana Marin is in the process of selling lands and placing structures in areas which probably have severe hazards to public safety. The area is underlain by terrace deposits, dunes, Franciscan melange, and Merced formation. Large landslides have formed on the melange at the ocean cliffs. Detailed geologic mapping is available, and strict locational controls should be instituted based upon this information. The area is less than a mile from the San Andreas Fault, and small, probably related, faults traverse the area itself. Seismic response will likely be high in the landslides, and large scale slope failures would be possible in the event of an earthquake. Seismic response will be significant on the dunes and the terrace deposit areas. Strict structural controls should be imposed over any proposed construction in these areas.

Coastal erosion is actively encroaching inland. Exact mapping of the rates and locations of the erosion is required and strict locational decisions should be based upon this information. Soils of the area are highly erodible, and severe gullying is evident. Dunes will be subject to wind erosion if vegetation is disturbed. Special controls over vegetation re-

moval, grading practices, and man-induced runoff should be instituted for the entire area.

Adjacent to these settlements is one of the richest and most extensive intertidal areas within the region. Waste discharges and runoff from this area must be carefully controlled and not allowed to degrade this marine resource. It is recommended that additional development in this area be minimal, and that it be limited to the confines of the existing settlement area.

Tomales. This small rural service center, serving local economy, occupies, and is generally surrounded by, lands of high open space value, mostly for agricultural purposes. It is recommended that any additional growth be limited to that which is directly or indirectly related to the local economy or to small-scale commercial activities that provide services to recreational users of the coastal area. Growth should be confined to the general limits of the existing settlement.

East Shore of Tomales Bay. Although this area is within a short distance from the metropolitan area, it remains relatively untouched by residential and commercial development, and dairying, ranching, and watershed protection remain its primary land uses. The area has few safety hazards, but open space values are confined to visual amenity from the National Seashore across Tomales Bay and to the value of its lands for grazing. The lack of development is primarily attributable to inadequate water resources, coupled with the absence of high-speed direct access routes from major employment centers of the region.

Most of this area is underlain by the Franciscan melange formation, with some large blocks of Franciscan sandstone and greenstone occurring in some areas, including around Point Reyes Station and south of Tomales. Landsliding, slumpages, and ravelling, mostly unmapped to date, are all common on the steeper melange slopes. Some soils are highly eroded on ridgetops and slopes, partially because of high wind stress and overgrazing by livestock, including sheep, which have prevented substantial re-establishment of grass cover. Gullying is common on slopes as well as in alluvial material in valley and canyon bottoms.

Here, as at Dillon Beach, the entire area has been and will be affected by seismic activity along the San Andreas Fault, lo-



cated in Tomales Bay, only one-half mile away. Seismic response in terrace deposits along the edge of Tomales Bay could be significant. Many of the slopes in the melange could be expected to fail. Controls over vegetation removal, revegetation for erosion control, grading practices, and man-induced runoff control must be instituted throughout this area.

The lower areas of terrace formation and alluvial deposits are subject to flooding by seismic sea wave action. Moderate cliff erosion is occurring in the terrace deposits due to the action of small waves generated by the prevailing winds from the northwest. The flooding and cliff erosion hazards are severe enough to warrant their precise mapping and subsequent use as locational criteria for any allowable construction.

Tomales Bay is little modified by man and is exceptionally clean. The Bay thus remains as one of the most unique water bodies in the State. It supports an extremely diverse bird population because of its varied water depths, healthy eelgrass beds that are frequented by Black Brant populations, and extensive mudflats that are actively used for commercial shellfish production.

As in the case of Bodega Bay, the ability of Tomales Bay to continue its support of these marine resources is dependent upon the quality of the Bay waters. Land uses and activities that produce contaminated runoff, sewage effluent, or increased sediment loads would result in significant detrimental impacts to the marine habitats and organisms.

If sufficient infrastructural improvements were made in water supply, sewage treatment, and accessibility to accomodate even small amounts of development, growth here might be shown to be economically feasible on a project basis. However, these improvements would be a sufficient catalyst to attract further levels of development that could lead to a significant alteration of the coastal character throughout west Marin County. They would surely increase runoff and erosion rates in the Bay watersheds and therefore sediment loads in the Bay and its tributary streams, and thus lead to degradation of the valuable marine, estuarine, and wetland habitat resources of Tomales Bay. Hence, it is recommended that the existing character of the east shore of Tomales Bay be maintained, and that development be prohibited from the area.

Inverness and Inverness Park. These two communities, while they generally occupy and are surrounded by areas of high open space value, do not have severe safety hazards. However, they are included in the next most hazardous category, and have experienced erosion problems that endanger property as well as pose a threat to the valuable wildlife habitat and recreation resources of Tomales Bay.

The soils of this area represent an unusually high erosion hazard potential, and particularly in the case of those of the Miramar soil series. Critical slopes are immediately adjacent to the valuable Tomales Bay waterfowl and shellfish habitats. Sedimentation, accelerated runoff, and waste discharges that have resulted from these developments must be controlled. The lower areas of these two communities could be subject to damage from seismic sea wave action.

Numerous subdivided residential lots are presently vacant within and adjacent to these two communities. While the current study of the Tomales Bay environs indicates that additional lots could be created within the existing zoning and other land use constraints, further expansion of these settlement areas would be contrary to the General Policy Framework. Expansion would not appear to be warranted due to the present development rates, and it is doubtful that much construction could meet the environmental impact review criteria detailed in Chapter IV. It is recommended that further expansion of these communities be halted and that very stringent controls be exercised over further construction.

Point Reyes Station. This small rural service center for the most part supplies the commercial needs of the local agricultural economy. Point Reyes Station also is adjacent to the entrance to Point Reyes National Seashore, and is the closest existing settlement having a supply of non-conflict lands nearby. There are approximately 1,100 acres of non-conflict lands (lands without high open space values or severe public safety hazards) directly adjacent to the town.

Soils with poor drainage characteristics cover portions of the area, including the Reyes soil series. Specific construction standards may be required to protect property and to prevent interruption of subsurface fresh water aquifers.

Lagunitas Creek, designated by the California Department of Fish and Game as an important salmon and steelhead spawning

stream, bisects the area shown for possible expansion. Although slopes in the area are relatively flat, the quantity and quality of runoff and possible sedimentation from new development could have a significant and adverse impact on stream health. Special drainage, grading, and vegetation removal regulations should be instituted, and should be applied especially within the areas having soils of poor drainage characteristics.

It is recommended that any commercial development occasioned by the presence of the Seashore be located generally within the area shown on the map, and that residential development be limited to a level that reflects the needs of the local economy. The current study of the Tomales Bay environs indicates that, subject to existing zoning and other land use controls, there is sufficient land for a large number of additional residential lots at Point Reyes Station. Therefore, development should initially be confined to the numerous vacant parcels within the existing settlement area.

Bolinas. This small village presently contains subdivided areas with sufficient space for approximately 1,160 additional dwelling units, if all current zoning and Marin County Environmental Health Department standards are met. This would then be adequate to allow the community to treble in population, even without expanding the existing settlement areas.

The village of Bolinas straddles the Monterey shale and Merced formations. It encroaches as well into the San Andreas Fault zone, and there is a mapped trace traversing the settlement area. Although the plateau areas are flat enough to prevent slope failure, disturbance or grading of bluffs or cliffs may cause sliding, particularly on the Monterey shale. These conditions require development of special controls over grading practices.

Although seismic response may be relatively lower than in some other formations, the proximity of this area to the San Andreas Fault warrants detailed geologic mapping of the area and the institution of special design standards to minimize the risk to life and property.

The Monterey shale is one of the more rapidly eroding coastal formations. Strict locational controls must be placed upon

development in this area based upon accurately mapped encroachment areas and rates.

Runoff from the developed area drains either towards Bolinas Lagoon or towards the ocean coastline into the nearshore tidal area and Duxbury Reef. As development increases, the runoff must be sensitively regulated to prevent degradation of these outstanding marine habitat areas.

There is evidence that the water supply is inadequate for even the present population in dry years. Capital improvements to significantly improve this situation and allow full development of the existing subdivided areas would provide a catalyst for growth that would be in conflict with the open space values and policies and that would require significant increases in accessibility to all of State Highway 1 in southern Marin County. This public service investment would result in greatly increased pressures to allow development that would conflict with regional coastal goals and the general policy framework. Therefore, it is recommended that the community of Bolinas be confined to its existing settlement areas, and that growth be maintained at a minimum, probably less than a total 20% increase in dwelling units in the next twenty years.

Seadrift. Although it is directly adjacent to Bolinas and Stinson Beach, the character and problems associated with this development are significantly different and warrant special treatment. This development occupies a position whose environmental characteristics are unique among all private lands in the region. It lies atop the San Andreas Fault (which experienced sudden lateral movements of over twenty feet near here in the 1906 earthquake) on a sandspit whose existence is at the mercy of the sea on which it fronts. The perimeter of the sandspit is continually shifting; it would be in severe danger of rapid erosion should any development "upstream" in the littoral drift interrupt what might seem an insignificant portion of the sand upon which it depends. The development is subject to inundation should a seismic sea wave of moderate size occur. It occupies and is surrounded on all sides by lands and waters with high open space values whose preservation has been proposed in numerous studies of the area. It is recommended that consideration be given to prohibition of vacant land sales to private parties and further construction on this sandspit, due to severe hazards to public safety.



Stinson Beach. This small community of primary and second homes generally occupies and is surrounded by lands with high open space value and safety hazards of various degrees. It is on dune and Franciscan melange formations; the melange is known to be landslide prone in its natural condition and is particularly subject to failure when disturbed. The dunes and any slide formations of the melange that exist would be subject to significant seismic response in an earthquake, and slide formations may fail. Detailed geologic mapping should be required as a basis for locational decisions, and development should avoid these hazard areas or be subject to strict standards to minimize loss of life and property.

Lower portions of the town are subject to flooding in the event of a seismic sea wave, and locational restrictions based on this hazard also should be instituted. Storm runoff from the town drains, in part, into Bolinas Lagoon, whose water quality is critical to its valuable waterfowl and shellfish habitats. Actions that could result in sedimentation, accelerated runoff, and waste discharges into the Lagoon must be controlled.

There are some vacant parcels within the community, but further expansion of the settlement area would conflict with the general policy framework and the open space policy. Hence, it is recommended that additional development be allowed only in non-conflict areas and within the confines of the existing settlement area, subject to locational restrictions relating to degree of hazard.

Muir Beach. Although it is not shown on the growth/non-growth map, this community merits discussion. The developing area above and northwest of Muir Beach is on the Franciscan melange. This critical failure-prone formation requires restrictions based on detailed stability mapping. Massive landsliding occurs at the oceanside, due partially to wave erosion. Soils formed on the melange generally are highly erodible.

Drainage to the Frank Valley should be controlled to prevent damage in the form of water pollution and sedimentation to the water supply and the riparian habitat. Regulations regarding vegetation removal, grading practices, and man-induced runoff also should be imposed on development.

It is recommended that development at Muir Beach be minimized due to visual factors affecting open space values and to the effects on water supply and surrounding riparian habitat that likely would accompany further development.

#### San Francisco City and County

Nearly all of the Primary Coastal Area of San Francisco is in public ownership. These are lands and waters of high open space value, often with severe hazards to public safety. Cliff retreat and beach erosion are recurring problems throughout the City's coastal area, and the open space areas are subject to intensive use from the adjacent urbanized areas.

It is recommended that public open space uses should predominate in these near-shore areas. As military lands are determined from time to time to be of diminishing utility for those purposes by the Federal government, they should be transferred to public open space recreation uses. None of the existing public lands should be sold or leased for private use or otherwise used for development of higher intensity than now present, and the City and the region actively should seek extension of public open space uses for this area.

Regardless of the resolution of the alternative Golden Gate National Recreation Area proposals as they relate to the Presidio, of San Francisco, this area in public ownership will continue to constitute a major regional open space resource. However, the May, 1972, Presidio Master Plan largely ignores this fact, and several of its proposals reduce recreational and visual amenities. Although it is recognized that the U.S. Sixth Army has an obligation to continue certain of its defense activities at the Presidio, the Presidio Plan proposals most detrimental to open space values of the coastal area do not appear to be dependent upon their specific locations.

Most notable for inappropriate activities and/or locations in the coastal area, are the following: 1) construction of a new Golden Gate Bridge Toll Plaza Bypass, that would reduce open space and diminish views from the bridge area; 2) relocation of an ammunition storage area to the bluffs immediately above Bakers Beach, which reduces shore frontage, open space with high value, and visual amenity; and 3) demolition of several existing buildings and construction of seven new structures in Fort Winfield Scott, an historic area that is plan-

ned by the National Park Service as one of the major activity centers for the proposed Golden Gate National Recreation Area.

Each of these proposals is within the area proposed for inclusion in the Recreation Area, and would significantly diminish the open space and recreational values of this publicly owned portion of the coastal area. The Presidio Master Plan should be reconsidered by the Army, and all proposals for the Presidio should be cognizant of: 1) the availability of other locations, including on other military lands in the Bay Region, for certain or the proposed activities; 2) the relationship of the Presidio to the proposed Golden Gate National Recreation Area; and 3) the very high open space value of the Presidio to the region.

#### San Mateo County

Daly City. This city occupies, and is surrounded by, areas of high open space value and severe public safety hazard. Known critical formations in this area include terrace formations, dune and beach formations, alluvium, slope wash and other artificial fill, and large scale landslides. All except the slide formations are relatively stable on flat areas, but subject to failure where disturbed. Some slides are probably active. Detailed surficial geologic and slope stability investigations and mapping and strict locational controls based upon these must be instituted for further development.

Seismic response will be significant in these critical formations. The San Andreas Fault zone traverses the area and enters the Pacific Ocean in a rapidly eroding and failing cliff zone. Precise mapping of the relevant traces, crush or shear zones should be prerequisites of further construction.

Coastal erosion susceptibility is high along a considerable portion of this coastline, particularly in terrace and Merced formations. Development can and has accelerated the erosion process through increased runoff. Precise mapping of the location and rates of erosion should be undertaken, and these should become the basis for locational decisions near the shore.

The coastal portions of the city are mostly developed at present; any further development should be kept to a minimum.

Pacifica. This coastal city is entirely within the Primary Coastal Area. For the most part, it does not occupy lands either with high open space value or severe public safety hazards. However, it is surrounded by lands with these characteristics. Like Daly City, known critical formations are subject to failure where disturbed. Seismic response again will be significant.

Coastal erosion susceptibility also is high along a considerable portion of this coastline with development accelerating the erosion process.

Flooding has occurred in the San Pedro Valley area and is possible in others. Enforceable flood plain zoning is appropriate in these areas and should be instituted. Inundation by seismic sea wave action is possible in the lower portions of the shore, particularly in the Sharp Park and San Pedro Valley areas. Hazard zoning based upon a precise study of this hazard should be instituted.

Some soils in this area, and particularly those surrounding the San Pedro Valley, are highly erodible, and severe and deep gullying is in evidence. Strict controls over vegetation removal, grading practices, and man-induced runoff are required to minimize damage, both on-site and downstream from construction.

It is recommended that any further development in Pacifica be limited to the confines of the existing settlement areas. In view of the problems of access to the shore that could be created either by significant highway development or additional shoreline development, it is also recommended that these areas be restricted to development compatible with its open space character and the severe hazards that exist.

The Mid-Coastside. This area extends from Montara Mountain to just south of the intersection of State Highways 1 and 92. It contains three communities - Montara, Moss Beach, and El Granada, and one incorporated city - Half Moon Bay. While these are distinct to their residents, they are all under rapidly-increasing pressures for residential development in similar environmental situations; they also share many of the same transportation and public service problems that would be imposed by such development.



In the mid-coastside, the terrace, alluvial, and slope wash deposits, and the Purisima and Monterey shale formations can be critical to slope stability. The terrace and alluvial deposits are relatively stable where flat, but subject to rapid erosion and failure where sloping and disturbed or undercut. The Purisima and Monterey shale formations are subject to significant landsliding under natural conditions; this is accelerated by the disturbance that accompanies development. Detailed geologic mapping, including slope stability investigations, should assist in the control of development.

The area is traversed by the active Seal Cove Fault, believed to be connected to the San Andreas Fault. Seismic response could be significant in terrace, alluvial, and colluvial deposits, and in any existing landslide areas formed on the Monterey shale and Purisima formations. Precise mapping of the relevant traces and crush or shear zones should be undertaken to be used for locational controls.

Coastal erosion susceptibility is high in many areas and cliff failure and ocean encroachment is known to be extremely rapid in the marine terraces near El Granada. Development and alterations of ground and surface water regimens can accelerate the erosional process. Precise mapping of erosion location and rates should be undertaken, to support regulation of development and attendant runoff.

Flooding has occurred on Pilarcitos Creek, and is probable on others within the mid-coastside. Flood-plain zoning is appropriate for the mid-coastside and should be instituted and enforced. Flooding due to seismic sea wave action also is possible in the lower areas east of Pillar Point and in a zone extending from El Granada to Half Moon Bay. Hazard zoning, based upon a detailed study of this possibility, likewise should be instituted. Many soils in the mid-coastside are highly erodible, including those of the Tierra-Colma soil association, and severe gullying can be seen in the hills behind all the mid-coastside communities. Strict controls over vegetation removal, grading practices, and man-induced runoff should be instituted to deal with these problems.

Coastal resources include several beaches and unique rocky intertidal areas. New development and population increase could have serious adverse impacts on these. Beaches would be significantly altered, or even disappear, if construction practices were to diminish natural sediment flows to and along

the shore, because part of the beach material supply is derived from local watersheds. Intertidal areas, the two most notable at Moss Beach and the Frenchman's Reef area, are very sensitive to sewage discharges, both untreated and chlorinated. Runoff from urban areas, often highly polluted and seldom adequately controlled, also can contribute to the degradation of these sensitive marine habitat areas. These conditions would tend to increase with any additional development of the mid-coastside, and should be carefully regulated.

Presently, there is a proposal by the State Division of Highways to construct a bypass around the Devil's Slide area, in the form of a four-lane freeway from Pacifica to Montara across Montara Mountain. This would have the virtual effect of extending the high-capacity commuter access to Pacific all the way to the mid-coastside. Current development pressures are enormous, and the City of Half Moon Bay is reviewing for possible adoption a plan calling for a maximum population - including expected density bonuses - within Half Moon Bay of over 47,000. This would consume many areas of high open space value, and would put additional pressures for development on surrounding areas. The bulk of this area has high open space value - mostly for agriculture and recreation, and varying degrees of hazards to public safety. Moreover, it is largely surrounded by lands with severe public safety hazards. Hence, expansion of existing settlement areas clearly would be in conflict with policies regarding hazards and open space values, and it would be virtually impossible for such development to conform to the review criteria discussed above and in Chapter IV. Infilling alone could lead to more development than is compatible with the existing open space character of the mid-coastside.

Existing residential development in the mid-coastside primarily serves the employment centers of San Francisco and San Mateo Counties as bedroom communities. Expanding residential development in this area would further this relationship, and would conflict with the proposed regional policy framework regarding dependency of a use upon coastal resources. Hence, expanded residential development for the mid-coastside is considered inappropriate, and could be better accommodated in other portions of the Bay Region where investment in existing freeways and mass public transportation facilities already has been made.

The existing transportation links to this area would allow for a maximum population of approximately 15,000. If the Devil's Slide bypass is constructed as a four-lane freeway, San Mateo County has estimated that a maximum population of approximately 28,000 could be adequately served, and that this population could be housed, if selected in-filling were to occur, within and between the existing settlement areas, thereby allowing individual community identity with surrounding open space. It is proposed that the 28,000 maximum population be a "back-up" policy, to be adopted only in the event that: 1) the freeway is constructed as presently planned; 2) that growth cannot be held at lower levels, most desirably at 15,000.

The South Coastside. South of Half Moon Bay, the flat marine terrace deposit narrows and is replaced largely by the rolling slopes of the Purisima formation at Tunitas Beach. Interrupted only by terrace deposits along San Gregorio Creek and alluvium in the Pomponio Creek Valley, this formation, with its several related members, rises, hummocky and rounded, toward the Santa Cruz mountains and well beyond the primary coastal area. The Purisima formation is highly disposed to both deep and shallow landsliding. Because of its poorly consolidated structure, coastal cliff erosion often is relatively rapid. Many of the soils formed on the Purisima have a high montmorillinite clay content, and therefore are highly expansive and erodible, especially where grass cover is poor or the surface has been disturbed. Gullying is prominent on the slopes behind the flatter terraces.

The active San Gregorio Fault traverses this area from just north of San Gregorio Beach to the eastern edge of Ano Nuevo Bay. Adjoining this fault is a strip of the Purisima formation, about a mile wide, that extends from Pescadero Beach to as far south as Franklin Point. Between this formation and the shore, there is a unique formation of flat coastal marine terraces and the flat-topped "Mesa" of the Pigeon Point formation. This is a unique example of coastal physiography - three or four-stepped and variously aged marine terraces - the only such example in the region.

Coastal erosion is variable, because the terrace deposits are partially protected in places by the harder Pigeon Point formation upon which they lie. Extensive sand dunes occur both at Franklin Point and at Point Ano Nuevo. Disturbance of these dunes or the coastal strand plant community that serves to stabilize them would result in exposure to wind erosion. Regula-

tions should be adopted to protect their delicate balance.

Seismic response throughout this area will be highest in landslide formations and on the mud deposits of the Pescadero marsh area. Response also will be significant in areas of alluvium and slope wash, and on the terrace deposits. Seismic sea waves will affect only the low lying areas such as Pescadero Beach, because most of the south coastside is fronted by bluffs and cliffs of moderate height.

Although there are small portions of this area that do not have high open space value or severe hazards, it is recommended that the south coastside be retained permanently in open space. Any significant increase in the isolated development that exists here would result in pressures for public services. If provided, these would act in turn as a catalyst for further development. These pressures surely would be exerted on portions of this area with the highest open space value, because only small areas do not have these conditions, and thereby would diminish the high regional open space values of the south coastside.



## **IV. SUPPORTING POLICIES AND STRATEGIES**

The general policy framework and their spatial implications detailed in the locational policies provide the primary policy base for this plan. This chapter includes an identification of the supporting policies and strategies by which those primary policies may best be implemented.

The approach in this effort utilizes three methods:

1. Directing development away from non-growth areas, and areas of high open space value or high hazard, through control of location, capacity, and timing of major public service facilities, such as public water supply treatment and distribution facilities, roadways, and sanitary sewage collection and treatment facilities.
2. Regulating land use, landscape alteration, and land development.
3. Acquiring areas recommended for exclusive public recreation or open space, for which reliance solely on regulation is inappropriate or infeasible.

The three approaches are consolidated into an overall and mutually supportive strategy. For example, one of the purposes of controlling extension or expansion of public facilities in areas of high open space value is to maintain relatively low land costs and taxes, which thus enables open space uses and activities economically to continue. In turn, this ensures that pressures for change to more intensive uses are reduced. Similarly, it influences the efficacy of land acquisition.

Full use and coordination of all three approaches are essential to realization of the planning objectives for the coastal area.

### **PUBLIC FACILITIES POLICIES AND STRATEGIES**

Directly related to the Growth/Non-Growth Policies are strategies and supporting policies regarding the locations, maximum allowable service capacities, and timing of installation of major public facilities. These are divided into two policy sub-areas: 1) accessibility to, from, and within the

coastal area; and 2) availability of public water supply and sanitary sewer services.

Obviously, these policies do not propose that prescribed maximum levels be installed. Rather, they constitute proposed regional public policy regarding the allowable levels of accessibility and public services that could be permitted commensurate with any needs for growth as may be set forth in the Growth/Non-Growth Policies and reasonable recreational travel needs. These policies should provide the basis for existing federal, state and regional reviews, and any proposed extensions of these powers over public works.

### Accessibility Policies

Defined maximum levels of accessibility to, from, and within the coastal area must be a positive instrument of public policy to influence land use decisions which reflect established open space and growth policies. The maximum levels of accessibility indicated are the sum of all forms of vehicular transport of persons within and to the corridors and nodes mapped. Existing levels of accessibility have been accepted as they occur, and there is no policy recommended for reducing these levels. However, there may of necessity be a reduction in the present degree of dependency upon the private automobile as the primary means of transport in the coastal area. This would be consistent with the policies of minimizing the effects of structures, in this case - roads, and of energy consumption, on and in the coastal area.

Corridors and nodes of high, medium, and low accessibility are depicted on the accompanying map. The areas shown in the "high" category indicate that either a high level of accessibility already exists, or a significant increase in recreation and visitor accessibility is necessitated by the nature of the coastal resource. Similarly, a "medium" designation recognizes an existing medium level of accessibility, or indicates that some increase to a specified maximum, may be required in visitor and recreational accessibility for public use of coastal resources. A "low" level of accessibility is designated where few, if any, improvements should be made to existing roadways, but where increases in recreational public transportation should be encouraged commensurate with the General Policy Framework and the open space locational policy. In the case of a node, this policy is not intended to increase accessibility along the entire corridor from an urban center to or within the coastal area.

The entire area from near the south end of Tomales Bay to the Mendocino County line is proposed for a "low" level of accessibility. This reflects the recommendation that the existing roads and highways be maintained at their present capacities throughout this area. It is further recommended that any increases in demand for accessibility to this coastal area be met through a public transportation system, scheduled to be of most convenience to recreational travelers, that would respect the established regional open space values present. Sonoma County is proceeding with plans for upgrading the existing county road from its intersection with Highway 1 north of Russian Gulch to just south of Stewarts Point. While this will alleviate pressures on Highway 1 north of Russian Gulch, demands are certain to arise for the upgrading of that highway between its intersection with Highway 116 south of Jenner and the improved county road. Most of this section is steep, tortuous, and narrow, and passes through an area of very high visual value to the region. Massive reconstruction to increase capacity would be inappropriate and would be in conflict with the General Policy Framework. Moreover, it is very doubtful that such highway construction could conform to the review criteria proposed later in this chapter.

In the past, there has been proposed a realignment of State Highway 1 from Keyes Creek, in Marin County, to Bodega Bay in Sonoma County. An additional highway crossing of this area does not appear warranted, because the area is now accessible by other roads. However, such a proposal would serve the interests of developers of new complexes, who would benefit greatly from the windfall arising from this public investment.

The road improvements would be crossing an area with both severe hazards to public safety and high regional open space value. Massive slope stabilization for the many deep cuts and fills would be required, as well as two high bridges to cross two of the most important estuarine habitats in the region - Estero Americano and Estero de San Antonio. Any development adjacent to these wetland habitats, which have received statewide attention, would bring adverse impacts.

If improvements were proposed for Highway 1 from Point Reyes Station to Keyes Creek, along the east shore of Tomales Bay, they should be evaluated carefully for their effect on amount of future travel. It is recommended that capacity of this section of the highway be maintained at its present level,

and that any demands for accessibility increase be met by additions to the public coastal transportation system. However, this would be for recreational travel only, and would not serve as a catalyst for development of bedroom communities.

The area adjacent to the planned entrance to Point Reyes National Seashore is proposed as a node of "high" accessibility. Because Point Reyes Station is recommended as the focus for recreation-dependent commercial development that might be warranted by presence of the National Seashore, this community is included within this node. It is proposed that accessibility to Point Reyes National Seashore be primarily by public transportation. Therefore, the relative dependency upon private automobiles for visiting this area would be reduced. The reasons for this are two-fold. First, unless strict lateral access control is maintained both along a highway route and at its terminus, pressures for development and land values in the entire area served would greatly increase, which would conflict with the set of open space and non-growth policies recommended, as well as with policies on growth in the Marin County Plan. The proposed improvements to State Highways 17 and 37 therefore would not be the proper method for achieving desired increases in accessibility to the National Seashore. Second, even with access control strictly maintained along the route to preclude this condition, consistent with the National Parkway proposal, there would remain the problem of large numbers of private automobiles in the National Seashore, either on roads or in parking areas, and the provisions necessary to accommodate them as their numbers increased.

The oft-proposed fixed-rail transit link from east Marin County to the National Seashore has not yet been formalized nor evaluated. However, if it is to be a conventional two-rail system within a roadbed, three points must be given careful consideration. First, the direct impact on the central and west Marin County environment will be considerable. Railroads typically tolerate a maximum gradient of 3%. Because much of the intervening terrain is steeply sloping, deep cuts and fills and extensive scarring of hillsides undoubtedly would be necessary. Second, the system would require an enormous capital investment, and probably would represent a permanent tax burden, even with federal support. Finally, due to the high cost of construction and operation, demand for use of the facility for commuting between east and west



Marin County probably would be generated, both by developers and the system's operators. The pressures for this could be hard to resist in the face of rising taxes, and land speculation and development pressures.

A freeway or high-standard road to increase the capacity of Highway 1 through Olema Valley would seem inappropriate in view of the legislation now before Congress regarding inclusion of this area in the proposed Golden Gate National Recreation Area. The Valley's considerable regional open space value and its severe hazards have suggested recommendations that it be maintained as a non-growth area in permanent open space. Like the proposals for improvements to State Highways 17 and 37, and to Highway 1 south of the valley, significant increases in capacity would "open up" this portion of the coastal area in conflict with coastal policies and the Marin Countywide Plan.

It would seem doubtful that improvements could be approved, or even proposed, without first significantly increasing the capacity of Highway 1 or Panoramic Highway, linking Olema Valley to the urban centers of the region. These two roads, traversing steep and tortuous terrain, perching precariously on narrow roadbeds carved from the landslide-prone mountains, are monuments to the tenacity of their builders. Any increase in road capacity in these areas could only be wrested from the mountains at high cost – both environmental and economic – and would serve to weaken the open space system. It also is doubtful that construction proposals leading to significant increases in road capacity could conform to the recommended review criteria contained later in this chapter.

The Presidio Master Plan of May, 1972, includes proposals for extensive road construction which would conflict with recommended open space policies. Included are plans to widen and straighten certain roads that presently fit their locations well. Aside from damage to the landscape certain to result, the principal result of these actions would be encouragement of higher speeds by regular users of the roads. Speeding already is a problem in parts of the Presidio; the addition of faster traffic would conflict with recreational driving use of this area.

There currently are many roadways within the Presidio that are not in full use due to locked gates. While it is recognized that security is a consideration in some areas and that

motor vehicle access would not be appropriate in others, selected routes should be opened to allow additional walking and bicycle riding in the Presidio. In this way, further public enjoyment of this important publicly-owned regional open space resource would be enhanced.

There has been a proposal made by the City of San Francisco to realign and otherwise improve the Great Highway, which lies atop the embankment that separates much of the City's residential areas from the beach. The Highway is presently straight, has four lanes divided by a raised median, pedestrian crossing only by three long underpasses which do not serve the needs of local residents, and continuing problems of excessive speed of motorists who share the roadway with, and present a hazard to, both pedestrians and bicyclists. The new proposal involves replacement of the entire highway by another four-lane road having gentle curves to encourage reduced vehicle speeds, parking bays within the curves on the ocean side of the roadway, and local parks and tot-lots on the residential side. Additionally, the pedestrian undercrossings would be reduced in length and increased in number, and vehicle access to the road would be increased by an additional intersection near the center of the improvement.

This proposal is in conformance with the open space and growth policies recommended, because it would further local and regional public use and enjoyment of this beach resource and would enhance the visual amenity of the shoreline in this heavily urbanized portion of the coastal area.

Plans have been prepared for replacement of Sharp Park Road by a freeway - Interstate Highway 380. While this would benefit land speculators and developers in Pacifica and the mid-coastside, it would increase those areas' current role as coastal bedroom communities. While the "need" for the project may be demonstrated by population projections (which become self-fulfilling prophecies) it also would be one more in a series of catalysts furthering residential development largely in conflict with the growth/non-growth policies of this plan. Hence, this freeway proposal is in conflict with those policies; it is recommended that Pacifica retain its present level of highway accessibility and that the program be halted.

Another likely proposal for freeway construction is extension of the existing freeway, State Highway 1, that ends before reaching the southern boundary of Pacifica. It is recognized

that existing State Highway 1 which passes close to the shore in the Linda Mar area of Pacifica does not enhance the coastal environment. However, existing roadway design and signalization problems, coupled with inadequate regulation of development siting and design do not necessarily call for a freeway "solution". In this case, the cure for traffic problems appears to be worse than the affliction. It is again recommended that Pacifica retain its existing highway accessibility level, and that no freeway be allowed for this area.

In the mid-coastside of San Mateo, there are a group of growing bedroom communities very dependent upon low commuting times to San Francisco and other employment centers for their present high land values and continued residential growth. If highway accessibility is increased, as currently planned by the State Division of Highways, greater pressures for development will surface, speculators holding large parcels of mid-coastside lands will reap a windfall return, and the region will lose one of its most important open space assets. The intent of the proposed Devil's Slide bypass is to remove existing State Highway 1 and its users from dangers inherent in its present location. This proposition has merit, if in fact the existing highway is in danger from earth instability from either above or below. However, that argument has met with serious and responsible question.

However, this relocation question is not the real issue. Highway capacity, and not the specifics of its location, presents the real threat to maintenance of open space values of the mid-coastside. To implement the recommendations of the growth/non-growth policies, the proper maximum highway capacity for this corridor would be the equivalent of a two-lane road. It is recommended that plans now being prepared by the Division of Highways be amended accordingly. Moreover, provision at this time of additional lanes, through excess grading will lead only to the promise of additional paving, hence road capacity, and would continue to encourage land speculation in the mid-coastside. Hence, grading for any relocation should only be allowed for two traffic lanes, an uphill slow-vehicle passing lane, when grades are in excess of 4%, plus adequate shoulders to provide for the needs of pedestrians and bicyclists. The latter should be actively supported, because of the high degree of recreational benefits that could be made available, in keeping with the open character of this distinct area of San Mateo County. If the highway were relocated, once it is across Montara Mountain, the connection

should be sought to the existing highway at the most northerly point possible – certainly no further south than Martini Creek.

The major recreational attractions of this portion of the region's coastal area are its beaches. As a linear feature, these are not so well suited to public transportation as the Point Reyes National Seashore. Yet, public transportation should be used as a reliable secondary means of access to the recreational resources of San Mateo County's coastal area.

Because land speculation and extreme pressures for development follow any increase in highway capacity within or to the coastal area, it is recommended that existing roadway capacity be maintained as a maximum to and throughout the mid- and south coastsides. This would extend to all roads that approach this area, including State Highways 1, 84 and 92, as well as Pescadero Road.

Although Highway 84 and Pescadero Road serve a non-growth area and thus do not even warrant consideration of provision for additional capacity, the case of Highway 92 is significantly different and deserves clarification. The capacity of Highway 92 has an influence over the growth of the mid-coastside very similar to that of the portion of Highway 1 south of Pacifica. Because the mid-coastside communities will probably develop only in relation to the degree of accessibility available to employment centers, realization of the open space policies depends in large part upon retaining the existing road capacity on Highway 92 as well as Highway 1 to the north, the other major connector to the mid-coastside.

It is probable that pressures will be very strong to allow construction of a freeway to serve this corridor. This is the major access route for residents of the southern portion of the region to coastal recreational resources, as well as the principal emergency vehicular access from western to eastern portions of the County. In addition, a substantial number of trucks will be using this route in conjunction with the Ox Mountain Sanitary Landfill operation. If any freeway construction is to be allowed to augment access to the San Mateo coastsides, then the Highway 92 route would be preferable to Highway 1 capacity increases over Montara Mountain. Moreover, Highway 92 also serves as a link to San Francisco via the recently-completed Interstate Highway 280 as well as the San Mateo bayside, while capacity increases on Highway 1 would only serve to increase access to San Francisco. This is contrary



to that City's recently adopted policy of maintaining the current level of automobile access into the City. If a freeway were allowed for this corridor, very stringent development controls (e.g., prohibition of new service connections), might have to be instituted to maintain a level of development compatible with the high open space values and severe hazards encountered in the San Mateo coastside.

### Sewer and Water Service Policies

Because increases in accessibility are allowable to better serve public recreation use of the coastal area, capacity limitations on the other prime requisites of large scale development - water supply and sanitary sewer services - also must be instituted. Three levels of service are indicated - Unrestricted, Restricted, and Severely Restricted - and general areas of each service category are indicated on the Sewer and Water Service Policies map. The service capacities and the areal extent shown conform to the intent of the Growth/Non-Growth Policies, and the maximum allowable capacities, where indicated, are directly related to the respective maximum allowable levels of development.

"Unrestricted" means that there are to be no limitations placed upon the increase of services within the areas shown. These are either areas already having high levels of these services or areas with very high existing or allowable development levels. "Restricted" areas are those in which services may be increased or expanded, as detailed below in the text, to serve the maximum permitted level of development. "Severely Restricted" areas are those in which no additional provisions for water supply or sanitary sewer service capacity may be made. These are the non-growth areas from the Growth/Non-Growth Policies map.

These sewer and water service policies serve to delimit those areas within which increases in service capacity and areal extent of service would be allowable, pursuant to development permitted under the Growth/Non-Growth Policies. Water quality is the direct concern of the Regional Water Quality Control Boards of the State of California, and their minimum standards for water quality must be met. Hence, no policy herein is intended to place upper bounds on the quality

of water delivered by public water supply systems, the quality of effluent of sewage treatment facilities, or the overall quality of service of any public utility or service district.

The Sea Ranch development is a group of existing and proposed subdivisions that have as their source of water supply water rights to a portion of the flow of the South Fork of the Gualala River. There are no sewage treatment facilities at Sea Ranch at present. It is recommended in Chapter III that development be restricted to a level commensurate with existing highway capacities, and therefore that sewer and water services not be allowed which would provide capacity in excess of that allowable development.

Due to the allowable degree of development between Black Point and just south of Fort Ross, it is recommended that only a minimum level of services be allowed at Timber Cove, and none elsewhere within this area.

There presently is no significant development on the ridge to the north of Russian Gulch. This is an allowable growth area whose development should be restricted to a level commensurate with existing highway capacity. Similarly, it is recommended that any installation of public services not exceed the capacities necessary to serve the allowable development, nor must they be allowed to serve areas beyond the general area shown.

It is recommended that further development in Jenner be prohibited. No services beyond those required by the existing development should be allowed.

The Sonoma Coast State Beaches environs is served by several small water companies, but there are no sewer services. Extensive development of this corridor is not recommended. Hence, the level of public services should be correspondingly low.

The Bodega Bay area consists of an older community, surrounded by isolated dwellings and several large residential developments in various stages of planning and construction. Public services should be provided only to a maximum capacity required by the existing development plus existing recorded subdivision lots.

An additional capacity allowance may be made for the allowable growth area, as detailed in the growth policies, but only with the express stipulation that this additional capacity only be assigned to that particular area.

Development within the portion of the coastal area between Bodega Bay and Keyes Creek at the north end of Tomales Bay is not recommended. The installation of public services should only provide capacity sufficient to serve the existing development, with any excess capacity allowed only for development of a type, extent, and location allowable under the growth/non-growth policies. Expansion of services to the east shore of Tomales Bay also would be inappropriate, since this is a recommended non-growth area.

Public services expansion, both in capacity and extent of service area, may be allowed for Point Reyes Station. The service area should not be allowed to expand until warranted by the level of development within the existing settlement area. The community is adjacent to Tomales Bay and, if allowed to expand southward, would pass over Lagunitas Creek. These are both high value habitat areas, and every attempt must be made to provide for land discharge of liquid waste in upland areas, pursuant to the General Policy Framework and the development review criteria.

Public services for the communities of Inverness and Inverness Park should be restricted, both in capacity and service area, to the development levels and areas recommended in the growth/non-growth policies. Because these areas are not recommended for expansion, and only well-controlled construction should be allowed, public services to this area also should be severely restricted.

The village of Bolinas suffers from a water shortage so severe that a moratorium has been placed on further water service connections. Due to inadequate sewage treatment facilities, the Regional Water Quality Control Board has prohibited further connections to the existing system. It is recommended that growth of Bolinas be minimal and that further development be confined to the existing settlement areas. To reinforce that position, it is further recommended that no improvements to public water service be allowed beyond those needed for the growth suggested in the growth policies. Sanitary sewer services should be provided to those areas now causing degradation of the water quality of Bolinas Lagoon

and its tributary streams, but capacity should not be provided in excess of recommended growth of that area.

Because the Seadrift development adjacent to Stinson Beach occupies such a high hazard location, prohibition of further construction has been recommended. All further public service connections should be prohibited as well.

Public services should be improved in Stinson Beach only to provide adequate service to the existing settlement area, including allowable growth within that area. Sewer capacity should be allowed to a level that will enable the existing settlement area to comply with Regional Water Quality Control Board standards and cease its pollution of adjacent wetland areas.

Because San Francisco and Daly City are only partially within the coastal area, restrictions of capacity of public services is virtually meaningless. However, it is recommended that further public service connections be prohibited to any area in Daly City shown on the Open Space Policy map, having either high open space value or severe public safety hazards.

At present, the existing sewer and water district boundaries for Pacifica extend well into areas of high open space value and severe public safety hazard. There are two sewage treatment facilities, one of which is being modernized and expanded, and a connection is being built to allow abandonment of the other. Water and sewer service connections should be prohibited to all lands of high open space value or with severe hazards, to support the recommended growth/non-growth policies.

The recommended maximum population of 15,000 in the mid-coastside of San Mateo County is dependent in large part upon the maintenance of the existing highway capacity and the degree of control that may be exercised over the maximum capacities and service areas of the various public service districts. Public services in the mid-coastside are divided among three sanitary districts and two water companies. Public services should be controlled very closely as to the number and location of new service connections in this area, the decisions should be based upon the recommendations detailed in the Growth/Non-Growth Policies, and provision of services should not be in excess of allowable development.



Because San Francisco recently extended guarantees of 10 million gallons of water per day to the Coastsides Water District, the mid-coastside has no present water problem. However, service area expansion should not be allowed into areas with high open space value or severe hazards, or be allowed to expand beyond the area shown generally on the Growth/Non-Growth Policies map.

At present, all sanitary districts in the area have moderate capacity. Half Moon Bay, however, is in the process of adding sewage treatment capacity to provide for a population of approximately 20,000 by 1973, and for a population of 40,000 by the following year. This additional capital investment in treatment facilities for the mid-coastside is contrary to recommended growth policies; the maximum capacity of this facility should be maintained at a level sufficient for a population of 20,000 or less. While there are differences of opinion as to the merits of consolidating the three sanitary districts, the capacity of the two northern districts will be reached, and the provision for additional capacity at these two locations will only add to the land speculation and development pressures now rampant in this area.

The south coastside is a designated non-growth area. Preliminary work on a revision to the County Plan for this area indicates that only rural and land-oriented development will be allowed. Hence, it is recommended that expansion of services to the south coastside be prohibited.

## REGULATORY POLICIES AND STRATEGIES

To accomplish the general policies of the Coastal Area Plan will require heavy reliance on regulation of over use and development of private lands. These powers should be shared by local governments and an area-wide planning body - regional in scope and perspective, as in Chapter VI. The regional body would be involved in varying degrees of responsibility in two areas, with local government and other regional and State agencies. The type and extent of regulatory power to be exercised within each of these defined geographical areas is described below. Regional controls would involve the minimal requirements necessary to protect regional interests. Local bodies would retain authority to impose more stringent conditions, and in some areas to exercise paramount control.

## Regulatory Powers and Jurisdictions

### Primary Coastal Area.

The primary coastal area consists of the immediate and coastal environment, including the area from three miles offshore - the extent of State jurisdiction - to a line onshore defined by: 1) the extent of visibility from the shore or cliffs immediately above; 2) the extent of visibility from the major longitudinal travel corridors major public use areas; and 3) areas that support marine and coastal wildlife or coastal-dependent agricultural uses.

Within this area, the regional agency should share responsibility with local governments, other regional agencies and the State, especially the State Lands Commission, to assure that:

1. Proposed uses are coastal-dependent (i.e. the specific use requires physical conditions or natural resources unique to the coastal area);
2. Land alteration, construction or performance of the activity related to the specific use do not cause physical impacts, such as sedimentation, water pollution or erosion, which endanger or degrade the natural resources of the coastal area;
3. Land alteration and the siting and design of structures respect scenic attributes of the coastal area and the need for public access to recreation resources of the coastline; and
4. Proposed uses, land alteration, and construction are consistent with other relevant policies established in the Regional Ocean Coastline Plan.

It is proposed that the regional body exercise mandatory review and approval of all applications which are within the Non-Growth Areas.

Within the Growth Areas, mandatory review and approval by the regional body also would be required under any or all of the following conditions:

1. The application involves land or water areas designated in the Open Space Policies Map as having open space values;

2. The application involves land on which further development is limited to the confines of existing settlement areas on the Growth/Non-Growth Map or is subject to restrictions due to severe public safety hazards, as shown on the Open Space Policies Map; or
3. The application pertains to a parcel which abuts the coastline.

The regional body could exercise optional review and approval for all other applications falling within the balance of the Growth Areas.

#### Secondary Coastal Area.

The Secondary Coastal Area comprises the balance of the most immediate watersheds upstream from the primary area. Thus, it would include all watersheds draining to the Pacific Ocean within the four coastal counties, with the exception of the Gualala and Russian River watersheds and those tributary to San Francisco Bay.

Within this area, the regional body's responsibility, as related to coastal planning policies and issues, would be limited to regulating the physical impacts resulting from uses of land which could adversely affect coastal natural resources. Decisions as to the specific use of the land would rest with local government or be determined by other regional policies.

Because these lands would not visually intrude upon the coastal area, and the properties involved do not represent unique or limited coastal-related resources, it is not considered necessary to exercise the same degree of control as in the Primary Coastal Area. Hence, decisions as to the specific use of the land would rest with local government or be determined by other regional policies. However, it is proposed that the regional body, in cooperation with other special-purpose regional agencies, prepare mandatory performance standards and criteria for inclusion in local ordinances.

Additionally, it is recommended that the Growth/Non-Growth Policies be used as the basis for establishing regulatory zones within the primary coastal area. Two zones relating to the Growth and Non-Growth designations should be applied. The first, in those areas specified for retention in open space use, would confine permitted private uses to those directly related

to the open space values defined in the Open Space Policies section and map of this report. It would restrict land alterations and construction to that required by permitted uses. Exceptions could be made where strict adherence to the provisions would in effect constitute a confiscatory "taking of property". For these exceptions, it should be demonstrated that the type of use, intensity of use, and facilities to be constructed will preserve basic open space values and appearance of the area. These special uses would have to meet all the policies of the coastal plan, the generalized review criteria described in a following section, and more quantifiable standards and criteria as developed in subsequent planning phases.

Public uses and facilities, such as ports of refuge, maritime facilities, and power-generating plants would be conditionally permitted, subject to compliance with all the policies and criteria of the Regional Ocean Coastline Plan.

#### Review Process

The proposed review process involves examination of two basic factors: 1) the degree of dependency of proposed uses and activities on coastal area resources; and 2) the impacts or effects, direct and indirect, generated by the proposed use or activity. These are presented in relevant categories for review purposes in a later section. Within the Secondary Coastal Area, only impacts would be considered.

The concept of dependency and its application is set forth below. Similarly, criteria addressed to consideration of impacts are outlined and cross referenced to the General Policy Framework's five major policy areas - Conservation, Open Space, Environmental Quality, Resource Utilization and Urbanization/Development.

#### Dependency.

For present purposes, dependency is classified into:

Primary dependency, where a use or activity requires a specific physical resource of the coastal area, e.g. deep water access, beach, coastal view, etc.

Secondary dependency, where a use or activity seeks spatial proximity to a use or activity which has primary dependency. For example, commercial uses such as boat sales, chandleries



and sports-fishing canneries prefer sites close to a marina.

Dependency could be defined further to include tertiary dependency, that is the relationship between housing, public services, commercial services and other similar uses generated by the employees or users of primary or secondary dependent uses. However, due to the relatively narrow band of land and water included in the Primary Coastal Area, it is recommended that tertiary dependent uses not be permitted in the Primary Coastal Area, and be directed instead to the Secondary Coastal Area or other inland areas.

To refine further the concept of dependency for decision-making purposes, it is necessary to consider the extent or degree of dependency. It is proposed that three possible dependency ratings be employed in the review process:

1. Essential. The use is directed dependent upon a physical resource unique to the coastal area or which cannot readily be replicated elsewhere.
2. Beneficial. The use or activity either utilizes and benefits from a coastal area resource which can be supplied, replicated or substituted for at an inland location, at a cost which does not prevent the use or activity. Also included in the beneficial category are uses or activities having secondary dependency on an essential and permitted use.
3. Inconsequential. The use or activity is unrelated either to a coastal area resource or a use having essential dependency. The use or activity may seek the coastal location either because it wishes to have a pleasant or unique environment, unrelated to the successful undertaking of the use or activity, it seeks a location close to the supplier or customers of beneficial uses, or it wishes to utilize a facility, such as freeway or rail line, within the coastal area.

Degree of dependency can be indicated in economic terms. For example, the cost differential in constructing a facility using sea water for cooling purposes and an alternative of constructing the facility inland and cooling and recycling the water. In the report prepared for the Department of Navigation and Ocean Development, the Resources Agency, State of California, by Gruen Gruen + Associates and Sedway/Cooke -

Approaches Towards a Land Use Allocation System for California's Coastal Area - crude economic measurements are proposed. These are found in Chapter V. As an adaptation of these, "essential" could be defined as uses which require a coastal area resource which cannot be found elsewhere or replicated at a cost less than two times the initial investment; "beneficial" could be defined, if a proposed use utilizes a coastal area resource which can only be replicated or substituted outside the coastal area at a cost from 125% - 200% of the initial total investment and operating costs; and "inconsequential" are those utilizing coastal areas/resources available elsewhere or which can be replicated elsewhere at a cost less than 125% of the initial investment.

In the review process, the dependency findings would be pre-conditioned by the previously described Growth and Non-Growth Policies. Thus, within the Non-Growth areas, only uses or activities which can demonstrate an essential degree of dependency would be permitted. Uses which can demonstrate only beneficial dependency would not be permitted. The sole exception to this rule would be where the only way, short of public acquisition, to retain prime open space values is by permitting a use which, although non-essential, will retain the open space resource designated in the Plan.

With the Growth Areas, both essential and beneficial uses or activities would be permissible. Uses which have only an inconsequential dependency would be excluded.

It is proposed that potential major uses be classified in advance as to degree of dependency. However, in some cases, the degree of dependency can only be established on a case-by-case basis, with full investigation of alternatives. This is likely to be the case for many major public facilities, such as ports, power-generating plants, etc.

Whenever a proposed use or activity has been determined acceptable in a Growth or Non-Growth area, based upon dependency criteria, it would then be examined as to impacts. It would still be quite possible that a use which either has an Essential or Beneficial degree of dependency could be disallowed because of adverse impacts.

## Interim Review Criteria.

To assist in determining potential impacts, a set of criteria is set forth below for interim use. They are derived from the General Policy Framework, and are intended to be used in conjunction with such policies and the general Locational Policies described previously. These criteria are a means for considering external effects, cost and benefits, which are by-products of the proposed use or activity and the land alterations and construction required. These are not normally considered by present market-pricing mechanisms. While some of these effects lend themselves to quantification in dollar terms, others can only be quantified generally, and not expressed directly in dollars. Others totally elude quantification and can be expressed only in qualitative terms. Where appropriate, it is proposed that these criteria be quantified at a later time to reduce the danger of arbitrary decisions and enhance the legal basis for the regulatory and review process. The important point is that these concerns be made a conscious part of the decision-making process.

The interim review criteria are organized into general types of impacts upon the coastal area which might accompany or result from a use or development decision. They are highly interrelated; hence, many of the criteria may have applicability in more than one impact area. In those cases where a multiple reference is possible, the criterion is listed in the area of principal impact, with the other impact areas listed as references to the appropriate impact designation. For example, the physical impact on water quality might be reflected as: 1) an adverse fiscal impact on a property owner or on the public agency which must restore quality; 2) a sensory impact; 3) a diminution of recreational value; or 4) a damage of a wildlife habitat.

### A. PHYSICAL IMPACTS

#### 1. Air Quality

- a. Where local climatic and topographic factors are conducive to airshed pollutant concentration, the location and arrangement of land uses, population density, and performance criteria should reflect such conditions. (B2, B3)

- b. Standards for the emission of air pollutants set by an Air Pollution Control Board must be met. (B2, B3)
- c. For the purpose of energy conservation and economy, community and building design should reflect climatic conditions.

## 2. Water Quality and Supply

- a. Methods of conserving water resources must be considered in all use and development proposals and decisions.
- b. Inter-basin transfers of water resources should consider their impact on water regimen stability and water quality.
- c. Woodland watersheds, water recharge areas, and other elements of the water regimen with a direct bearing on the quality of water resources should be maintained in open space to insure the quality of public water supplies.
- d. The reduction of vegetative cover must not contribute to increased levels of surface water runoff or rates of erosion. (A3, A6)
- e. Site construction procedures and construction on highly erodible soils must not contribute to increased erosion or sedimentation. (A3)
- f. Siltation of lakes and impoundments and sedimentation of waterways must not increase to levels that degrade water quality. (A3)
- g. The impermeable surfacing or compaction of permeable soil and geologic areas must not disrupt or diminish natural patterns of ground water recharge.
- h. Grading and excavation in wooded areas must avoid disturbances to subsurface soil water or rooting patterns adverse to vegetation. (A3 , A6, B3)
- i. Withdrawal from ground water basins should not exceed yields established to assure continued supply.



- j. Withdrawal of ground waters and surface waters should leave quantities sufficient for effective dilution and assimilation of remaining pollutants.
- k. Discharge of organic nutrients should be shifted from aquatic to land environments where such nutrients may be used. (A3)
- l. Solid and liquid waste discharge and disposal must not contaminate water resources or damage the aquatic environment of the coastal area. (A3, A4)
- m. Chemical agents, particularly pesticides and heavy metals, that concentrate in the food chain and interrupt or destroy the primary biological network or threaten specie survival, should be rigorously controlled. (A3)

### 3. Wildlife Habitat

- a. Habitat resources must be conserved by preventing degradation of primary conditions of habitat structure.
- b. The implications of the natural processes of "succession" of vegetation types must be considered in all land use and development proposals.
- c. Elements of the coastal aquatic environment, such as marshes, mudflats, lagoons, estuaries, lakes, bays, riparian habitats and anadromous fish waterways which are highly productive natural habitats must be preserved. (A7)
- d. The continuous system of habitat units as presently identified on the Open Space Policies Map must be maintained in open space. (A7)
- e. To safeguard the coastal area from the potential risks inherent in ocean dumping, materials disposed of and the method employed should be free of significant risks to the environment or human life. (A2)

### 4. Recreation Resources

- a. Land and water recreational resources of the coastal area should be preserved for public open space use.

- b. The capacity of an area to sustain use should be the principal consideration in decisions regarding the type of access and support facilities provided.
- c. The natural erosion and transport of beach material from coastal watersheds into the coast's littoral circulation system must be maintained. (A3, C3, C4)

## 5. Agricultural Resources

- a. Prime agricultural soils should not be preempted for development, except when overriding public need can be shown.

## 6. Life and Property

- a. Coastal areas subject to severe environmental hazards, especially flood-prone and landslide-prone areas, high seismic-risk zones, steep slopes or areas subject to cliff erosion and seismic sea wave inundation, must be retained in open space.
- b. Areas whose development would pose a severe hazard to persons or development in presently-developed areas should be maintained in open space.
- c. Where development of an upland area would result in downstream impacts hazardous or inconsistent with other policy, that upland area should be maintained in open space.
- d. Slopes over 50% in grade should not be developed. (B3)
- e. Proposals to terminate grassland grazing must evaluate and plan for vegetation shifts to coastal scrub and chaparral and their attendant fire hazards. (B3, C1)

## 7. Scientific and Educational Values

- a. Coastal areas containing unique ecological, scenic, scientific, or educational values must be preserved. (A3, A4, B3)
- b. Fragile ecologic communities and habitats of endangered species must be maintained in open space. (A3)

## 8. Public Access to Coastal Resources

- a. Public access to the coastline must not be diminished by development or changes in use in upland areas.

## B. SENSORY IMPACTS

### 1. Noise

- a. Noise pollution with a detrimental effect on the quality or resources of the coastal environment must be avoided or abated.
- b. Within and adjacent to recreation areas, marine and wildlife habitats, and rural wilderness areas, significant noise emissions caused by mobile sources, including automobiles, dune buggies, motorcycles, lumber trucks, and power boats and equipment must be prevented.

### 2. Odor

- a. No use or development shall produce significant levels of noxious odors into the coastal environment.

### 3. Visual Form

- a. Natural land forms must be maintained to preserve hydrologic and scenic values. (A2, A3, A4)
- b. All grading and excavation should complement the natural configuration of the topography.
- c. Open space should be used to protect and enhance local community character and identity, to articulate urban structure, and to guide the physical shape and direction of urban growth.
- d. Open space should be used as a buffer between incompatible land uses within urban or essentially undeveloped areas.
- e. Public views from major travel corridors both to the shoreline and adjoining upland areas, should be protected and enhanced, and no development should obscure, detract, or negatively affect the quality

of these views.

- f. Development in coastal rural and wilderness areas should carefully fit the land and water so that its presence is subordinated and the pre-existing character of the environment is maintained.
- g. Development in the immediate vicinity of the shoreline or offshore area must be designed and sited so as not to visually intrude upon the natural setting.
- h. The siting, design and environmental impact of any access improvements or roadway realignments must include proper consideration of the view from and of the improvement.
- i. Design and appearance of all private and public development in the coastal area, including residential, commercial, industrial, agricultural, recreational, and infrastructural uses, should reflect and enhance the coastal character.
- j. Urban appurtenances, such as roadway and building signs, traffic signals, overhead wires and telephone and lighting poles, should have an uncluttered appearance, and be subordinate to their urban, rural, natural setting.

#### C. FISCAL IMPACTS

- a. An assessment of costs and fiscal impacts should be considered in all proposals.
- b. Financing and operation of public services for the area and the project at the ultimate stage of development should be assured, and be consistent with regional growth policy.
- c. Financing of needed capital improvements must be documented.
- d. A market should exist or be projected to exist for major developments over the full life of the development, and be consistent with regional growth policy.



## D. GROWTH EFFECTS

- a. Urban development should be prohibited from areas with high open space value.
- b. Urban uses should be directed to appropriate existing and potential urban centers and should strengthen the desired pattern of regional development. (C1, C2)

## ACQUISITION POLICIES AND STRATEGIES

### Acquisition Areas

Two basic considerations enter into any decision regarding acquisition strategy, potential pre-emption and public benefit. A comprehensive survey of land costs was beyond the scope of this study. However, a mapped determination of development pressures was made, based on the summation of relative values assigned to selected factors important to success of a residential development by subarea. This procedure is described more fully in the Appendix. This provides a rough prediction of lands most threatened by urban development.

A determination of probable benefits can be derived both from the Growth/Non-Growth Policies Map and the Open Space Policies Map. The former map is largely preclusive, i.e. specifying areas from which development should be prohibited due to hazards, limitation of development to confines of certain areas, etc. In other words, the map provides a basis for determining locations at which public harms can be prevented - generally an established legal basis for the application of regulation, and not acquisition. However, the Growth/Non-Growth Policies Map also could be used to pinpoint those areas or situations where use of regulation was legally, politically or administratively infeasible.

The primary basis for determining where public benefits may be secured, (i.e. the normal legal basis for use of acquisition powers, including eminent domain) is the Open Space Policies Map. That map also includes environmental constraints, depicting areas with severe public safety hazards and lands with slopes generally too steep to be buildable (over 50%). The hazard category again could provide a basis for regulation. The steep slope category needs no form of public intervention to prevent development (although it may be

necessary for other non-construction forms of environmental impact).

Within the three categories of open space values on the Open Space Policies Map, the first two are areas providing a sound basis for public acquisition (especially in view of the generally complex and unresolved questions dealing with regulation to achieve such ends): wildlife habitats and public recreational resources. The other open space value category, prime agricultural soils, indicating locations which should be so preserved, raises complex issues regarding acquisition: 1) Is this a "public use" under the constitution, for which eminent domain can be exercised?; and 2) If lands were acquired, what public agency exists or could exist, to administer the maintenance of farming of such lands? In the absence of clearer answers to these questions, it is proposed that primary reliance remain on regulation for this purpose. However, the use of acquisition and lease-back, exercise of covenants to ensure permanency of such uses, and related modification of tax policies all should be fully utilized.

Hence, it is recommended that the areas recommended for immediate acquisition be those indicated both with the highest rating - "1" - on the development pressure map, (indicating imminent threat of pre-emption and unfortunately also, high costs of acquisition), and a designation as a wildlife habitat or public recreational resource. Subsequent acquisition action should be taken on areas designated with a rating of "2" or "3" on the development pressure map.

### Financing

It is recommended in Chapter VI that the ocean coastline agency be empowered to exercise powers of acquisition, including purchase, eminent domain, and receipt of gifts. Financing of such actions can be obtained through the following:

#### Borrowing.

Initial acquisition costs probably will be high, and it may be necessary to borrow funds for planning and acquisition. Under Section 26301 of the Government Code, counties have authority to issue bonds to finance the acquisition, construction and operation of beaches, harbors and facilities for public convenience. If a district organization were used, it should be empowered to issue bonds. The East Bay Regional

Park District is authorized to purchase property on the installment plan. This is a useful device which should be included in the powers granted to the coastline agency.

#### Taxes.

A millage provision is an effective way of providing a regular source of operating funds. A county may impose a tax for park or recreation purposes. Enabling legislation for a regional agency or a special district should include authority to levy a tax adequate for development and operation. If tax revenues proved to be greater than needed initially, the excess could be retained for future expansion or improvements.

Once established, it is difficult to sell an increased tax rate to the voters at a later time. The rate should be set high enough initially to cover all foreseeable future contingencies.

#### Fees.

Fees for the use of facilities would provide a ready source of funds. Ideally, fees should be high enough to amortize initial development costs of facilities, and taxes should be used only to pay for general maintenance. Under Section 25826 of the Government Code a county can collect a fee from campers to pay for sanitary facilities in a recreation area. A provision authorizing the charging of fees should be included in the powers of any type of agency devised to acquire, develop and operate coastal recreation facilities.

#### Concessions.

Concessions usually are leased to operators on the basis of a percentage of gross receipts. Income from this source frequently is negligible and sometimes does not even pay the cost of maintaining the concession. If funds for development were not available initially, leases could be entered into with private concessionaires in which they agreed to develop various portions of the parks in exchange for concessions. This should not be done unless there were adequate assurance that the private development would be in exact conformity with plans and had no inharmonious characteristics.

## External Sources.

At the outset, substantial funds will be needed for land acquisition and development. Certain federal and state agencies are authorized to make grants and loans. Borrowing from these sources would be advantageous if the interest rates were less than those of a bond issue.

## Acquisition Authority

Chapter VI includes a full discussion of the several alternatives for creation of an agency with comprehensive powers to plan and implement. In the event none of the regional proposals evaluated in that chapter are feasible, a fall-back position for recreational purposes could be creation of a multi-county district.

The Association of Bay Area Governments is presently studying the feasibility of a nine-county park and recreation district. Again assuming this is not feasible, an attempt might be made to create a four-county regional coastline recreation district.

The district form of government, ignoring political boundaries, is especially appropriate in the recreation field. Increasingly, city dwellers seek escape to rural areas not necessarily within their own counties. A district which is not confined to a single county's boundaries often is a more efficient, better equipped and more equitable vehicle for providing for regional recreation needs than is a local or county government.

There are many practical advantages of a multi-county district. The district is a semi-autonomous unit of government which is relatively immune from political pressures. But it has power to tax, to borrow, and to acquire land by eminent domain. The district provides a method of pooling resources, coordinating and integrating functions, and using effective and economical procedures in management, budgeting, and personnel recruitment.

However, the multi-county district has disadvantages. It creates another level on the pyramid of governmental units and taxing authorities which can lead to administrative confusion and uncoordinated taxation. If the governing board is elected, a longer ballot may result. Members of such boards often run unopposed; this may lead to



unhealthy self-perpetuation and corresponding static policies. Moreover, elected boards sometimes engage in competition for power with city and county legislative bodies. Under most district enabling acts, the electorate of each constituent city or county must approve participation before the district can be organized. If this approval is not obtained, expenditures for preliminary planning may have been wasted.



## V. ECONOMIC IMPLICATIONS

The policies that are recommended for the coastal area will have profound economic impacts on coastal landowners, on the public agencies that serve the coastal area and on the citizens of the region at large. Some of these implications can be estimated on the basis of the policy statements themselves; others can only be suggested since the magnitude of the impact will depend on the specific land area that is involved and, in many cases, on the specific circumstances of the landowner.

The types of economic impacts that will result from the policy recommendations include:

the cash flow in alternative uses that would be permitted under the growth/non-growth policies;

the land valuation that would be implied by these cash flows;

the service costs and the revenues to public agencies that would result from land uses that do not conflict with the policy recommendations;

the implications for public recreation benefits on the coastline; and

the implications for unique agricultural, scientific, visual, and other resources that will be affected.

Beyond the direct impacts that result from the coastal policies, consideration must be given to the location of these impacts. In the past, much attention has been given to costs and benefits of various land-use policies without reference to those who will receive the benefits and those who will bear the costs. This practice of looking only at effects without direct reference to those affected ignores the equities of some situations and the practicalities of others. The economic implications of the coastal policies that are reviewed below consider both the impacts themselves and the groups on which they will fall.

By and large, the implications of the coastline policies can be considered only in general terms. Gross impacts can be estimated and general estimates can be made of the groups that

will bear these impacts. More specific estimates depend on evaluating specific situations and specific parcels of land. In general, however, it is possible to suggest guidelines that can be used to deal with the specific problems that involve specific land areas and specific sites.

## CURRENT ECONOMIC STATUS OF THE COASTAL AREA

The economic implications of the coastal policies can best be analyzed in terms of deviations from the current patterns of land use and economic activities in the coastal area. The base levels of population, economic activity and land availability are reviewed below.

### Population

Over 4.6 million people lived in the nine-county Bay Region in 1970, an increase of 27 per cent over 1960. The population of the counties most directly affected by the coastal policies - Sonoma, Marin, and San Mateo - grew more rapidly during the same period, increasing by 232,000 or 31 per cent to almost one million.

Population data aggregated for Census tracts lying within the coastal area indicates a 1970 estimate of population of 68,000. Since parts of several of these Census tracts are outside the planning area itself, this estimate is an overstatement. Thus less than seven per cent of the population of Sonoma, Marin, and San Mateo lived in the coastal area in 1970.

Because of changes in the definitions of several Census tracts, the 1960 data cannot be compared with the 1970 population estimates presented above. However, population data for the incorporated areas of Daly City, Pacifica and Half Moon Bay, parts of which lie within the coastal area of San Mateo County, show the 1960-1970 population increase was 58 per cent, higher than all other incorporated areas in the county.

### Employment

Total civilian employment increased from approximately 1.4 million to almost two million, or 36 per cent, in the nine-county region between 1960 and 1970. The increase in employment in the three primary coastal counties was significantly larger - 56 per cent during the same period. Approxi-



mately 334,000 people were employed in Sonoma, Marin, and San Mateo counties and about one-tenth of these were employed in the coastal area.\*

#### Availability of Developable Land

Of the 1.6 million acres in Sonoma, San Mateo, and Marin, less than 10 per cent is in the primary planning area. Over 80 per cent of this is potentially developable - the slope is less than 50 per cent. The data for the three coastal counties is:

<u>County</u>	<u>Land Area (Acres)</u>		<u>Coastal Area as per cent of Total</u>	<u>Lands Level Enough for Development</u>	
	<u>Coastal Area</u>	<u>County Total</u>		<u>Acres</u>	<u>per cent of Coastal Area</u>
Sonoma	39,623	1,007,851	3.9%	26,790	67.6%
Marin	60,979	326,823	18.7%	55,777	91.5%
San Mateo	<u>56,058</u>	<u>286,522</u>	<u>19.6%</u>	<u>45,760</u>	<u>81.6%</u>
Total	156,660	1,621,196	9.7%	128,327	81.9%

While over 128,000 acres are level enough for development, the plan excludes acreages which would conflict with several of its stated goals. Of this total acreage about 75 per cent involves either environmental hazards, a conflict with recreation usage, or a conflict with specialty agriculture or a natural habitat. Less than 32,000 acres is both developable and outside an area of potential conflict with open space values or environmental constraints, as defined in Chapter III.

\* This estimate includes employment in areas outside the coastal area. Lack of disaggregate data prevents a more accurate calculation.

Lands With Conflicts\* (Acres)

County	Theoretically Developable	Environmental Hazard	Recreational Use	Specialty Agriculture	Non-conflict Lands Available for Development
Sonoma	26,790	9,146	3,676	158	11,021
Marin	55,777	20,185	13,164	4,866	12,946
San Mateo	<u>45,760</u>	<u>20,933</u>	<u>9,943</u>	<u>24,540</u>	<u>7,451</u>
Total	128,327	50,264	26,783	29,564	31,418

Note: Land may be classified under more than one conflict potential.

## MARKET DEMAND AND POLICY IMPLICATIONS

### Primary Residences

Current California Department of Finance estimates indicate the nine-county Bay Region population will increase by 1.9 million by 1990. Of this increment, 400,000 are expected to reside in the three primary coastal counties. At current household sizes,\*\* this implies approximately 140,000 additional dwelling units will be required.

\* Not all conflict designations are shown in this table.

\*\* Average number of persons per household in 1970 varies only slightly from county to county: Sonoma, 2.91; Marin, 2.94; and San Mateo, 2.90.

County	1970 Population	1990 Population	Change in Number of Households
Sonoma	204,885	370,000	56,741
Marin	209,574	333,200	42,049
San Mateo	556,234	676,800	41,574
Total	970,693	1,380,000	140,364

Source: California State Department of Finance

A comparison of the number of additional dwelling units needed by county and the amount of land outside the coastal area available for residential development shows that a policy of excluding first homes from the coastal area is feasible. This is shown in the following table.

County	Dwelling Unit Increment	Land Available for Residential Development Outside Coastal Area	Break-Even Density (Du's per Acre)
Sonoma	56,700	123,900	0.46
Marin	42,000	32,600	1.29
San Mateo	41,600	26,700	1.56
Total	140,300	182,200	0.77 Average

The break-even density indicates how densely the available residential land must be occupied in order to accommodate the increase in population. Since these densities are low - the highest is 1.56 for San Mateo County where each new dwelling unit could occupy two-thirds of an acre - all new primary residential units can be accommodated outside the coastal area.

A policy, then, of disallowing first homes within the coastal zone is theoretically feasible and would have no overwhelming adverse economic impact. Enforcement of such a policy will be difficult and may be attacked as somewhat arbitrary.

Fundamentally, it is road access and resulting commuting times to employment centers that determines whether a residential

area will be for primary homes or for recreational uses. Further, if the current land use in neighboring areas is for primary residences, an attempt to impose a "second home or recreation" requirement for residential construction approval enforcement difficulties again will arise.

The specific growth/non-growth policies of Chapter III reflect both of these considerations and suggest the following approximate allocations between primary residential and second home use.

#### Population Growth Limitations For The Coastal Area\*

	Primary Population Growth (Residents)	Increase in Recreational or "Second Home" Lots
Sonoma County	420-670	925
Marin County	150-200	100-200
San Mateo County	7,000-20,000	300-400
Total	7,570-20,870	1,325-1,525

#### Second Homes and Second Home Lots

In order to estimate the potential demand for second homes and lots held for recreational purposes, a market area was analyzed that consisted of Yolo, Sacramento and San Joaquin counties in addition to the nine-county Bay Region. Approximately 80 per cent of all second homes are located within 200 miles of the owner's primary residence and 60 per cent within 100 miles. Thus, second homes and/or lots along the coast will be owned by people outside the Bay Region, but within this twelve-county region.

It is estimated that the number of households in this twelve-county market region will increase by 740,000 by 1990,\*\*

\* These figures are very approximate and should be viewed only as an indication of recommended holding capacity.

\*\* California Department of Finance Population projections for 1990 were used in this analysis.



and the number of second homes will increase from 58,000 in 1970 to 107,000 in 1990. The total number of recreational lots (i.e., lots with second homes constructed, plus undeveloped lots) for this market will increase from 160,000 to 275,000. These are estimates for demand from the entire Bay Region and are upper bounds for demand that will be satisfied in the coastal area. Much of this demand will be satisfied in other areas, such as Lake Tahoe.

When the total demand for second home and second home lots is applied specifically to the coastal area, both financial realities and policy decisions should be applied. In California, there has been a definite and active marketplace for second home lots in recreational subdivisions that had little to do with the market for second homes themselves. Lots in heavily promoted recreational subdivisions often are sold to unsophisticated individuals who believe, often mistakenly, that they can ultimately resell their lot at a gain or, perhaps, subdivide their lot and sell part of it while ultimately building on the remainder. In fact, of course, the market for resale often proves to be very limited and the actual observed buildout rate is often very low. In many cases buildout rates are lower than one per cent per year.

Actual practice in the Bay Region's coastal area has not followed this pattern, however. In part because of the relatively high cost of individual lots, the market is restricted to financially qualified buyers who have both the desire and the financial capacity to construct a second home that is appropriate to the quality (and price) of the lot itself. Considering the current market prices for land available for development in the coastal area, it is appropriate to assume that the cost of a second home including the lot will be in excess of \$20,000. If a "financially qualified" segment of the total second home market is taken as the specific market for the Bay Region's coastal area, then a lower estimate of demand results.

Data available for 1967 show that 13.7 per cent of all second home properties in the United States were valued at \$20,000 or more. Households owning 77 per cent of these had incomes in excess of \$10,000. Unfortunately more detailed income data are not available for higher income groups. However, only 10 per cent of the owners had incomes under \$5,000 and the remaining 13 per cent had incomes between \$5,000 and \$10,000. Many owners falling into these lower brackets are

retired persons, and their present incomes are often far below the present income of a potential buyer. It is reasonable to assume that all households who will purchase recreational property (house and lot) valued in excess of \$20,000 will have incomes (or sufficient wealth) in excess of \$10,000 per year, and almost all will have incomes over \$20,000.

The income distribution for the market region was estimated\* and revealed that only 6.4 per cent of all households had an adjusted gross income over \$20,000. While this measure of income understates true income (i.e., the per cent of households in this income class is greater than 6.4) and the per cent can be expected to increase due to increased productivity as well as inflation, the general price level and the price of land will also increase. The number of households who can afford this \$20,000 property will probably increase, but not dramatically. Perhaps 10 per cent of all households will be able to afford such a coastal home.\*\*

Analysis of nationwide data (1967) reveals that only 3.6 per cent of all households with incomes in excess of \$10,000 own second homes. Even assuming that this percentage increases to 10 per cent, the total number of families who can afford second homes valued at \$20,000 or more will be on the order of 27,000. Since 11,000 are estimated to exist now, approximately 16,000 more will be demanded.

Even this demand that includes only those who clearly have the financial capacity to build, once they buy a lot, is significantly in excess of the supply that would be permitted by the development policies. Without intervention in the market, the plan will have the effect of allowing only the most well-to-do to own land and recreational homes along the coast, and probably to rent as well.

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\* Number of returns in each Adjusted Gross Income bracket, available from the Internal Revenue Service, Statistics of Income - 1969, Individual Income Tax Returns for Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, San Joaquin, Placer, Sacramento and Yolo were aggregated to yield this distribution. This does not correspond exactly to the market area.

\*\* This includes some allowance for the \$10,000-\$20,000 household.

The estimates of demand for new dwelling units – both first and second homes – assumes that the infrastructure (utilities, water treatment, transportation facilities, etc.) that are necessary for residential development are made available as they are needed. As noted earlier, it is through the provision of this infrastructure that growth within the zone can be confined to existing developed areas.

### Coastal Dependent Industries

Previous studies of the coastal area\* have categorized commercial and industrial users of the coastal resource into four types:

Type I – These users are directly dependent on a coastal area resource which cannot be found outside the coastal area. These include fisheries, ports, and most marine recreation.

Type II – These use a coastal resource which can be replicated outside the coastal area, but at a cost premium greater than 25 per cent of the original investment. The production of coastal dependent vegetable crops, such as cauliflower and brussels sprouts, fall into this category.

Type III – These are uses for which coastal resources can be replicated elsewhere at a premium of less than 25 per cent of the original investment. Oil drilling, oil refining, mineral extraction, and power generation are included in this group.

Type IV – These uses do not depend on a coastal area resource but are attracted to the area because either customers, suppliers, or superior transportation is located there. Most industrial plants fall into this category as do retail and service outlets, military uses, etc.

Economic dependence, then, can be defined in terms of either cost reductions or sales advantages by virtue of the location of the enterprise in the coastal area. The prohibition of the use of the coastal area will have an adverse price impact on goods produced by any facility that requires the use of any coastal resource or the coast itself as an input.

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\* Gruen, Gruen and Associates and Sedway/Cooke, Approaches Towards A Land Use Allocation System for California's Coastal Zone (October, 1971).

The General Policy Framework does not expressly prohibit industry from the use of the coastal area. The statements regarding dependency as a criterion, in combination with the recommended interim review criteria in Chapter IV, however, would create a situation in which few industrial uses could be permitted in their present forms. It is impossible to forecast the impact of those conditions generally; its extent will be dependent upon the specific industry affected. Selected cases are discussed below.

#### Nuclear Power Plants.

The demand for electrical power is increasing rapidly as real income increases. Present indications are that this demand will be met by nuclear power stations. Due to the need for a cooling system to carry away waste heat, the proximity to areas of large demand for electricity, and ignoring the consequences of thermal pollution, a coastal location is most efficient. Prohibition of nuclear plants (or any other type of generating plant) due to their environmental impacts upon the coastal area will mean increased electricity costs for all. One estimate of that cost is \$5.00 per capita per year by 1990.\*

#### Agriculture - A Special Case.

Arable agricultural activities account for nine per cent of the total coastal area acreage in California. In addition much of the area classified as undeveloped is used for grazing pasture. Agricultural activities, then, are presently the largest user of the entire State's coastal lands.

In general terms, however, and without reference to land-use policy and general public values, all of the current agricultural uses in the coastal area cannot be preserved by pure and narrowly conceived "economic" arguments. On the basis of traditional assumptions about land use and land development - and assumptions that have certainly been proven correct by actual events - the "highest and best use" of those lands that are not beset by seismic hazards, steep slopes, or other impediments to development is often other than for agricultural purposes. Generally applied standards of economic return

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\* Gruen Gruen and Associates and Sedway/Cooke, op. cit., p. 181.



from land ownership suggest that individual owners should "wait for the market" and convert the land from agricultural use to urban or recreational purposes.

This situation is partially the result of a self-fulfilling prophecy. The profit potential from land uses geared to urbanization or high-value recreation uses has been widely predicted and is reflected in the market value of "agricultural" lands. The tax assessor who normally must be guided by his estimate of "market value" includes the consideration of development potential in his estimate of assessed value. This assessment leads to a tax bill that can make agricultural use uneconomic or, at best, permit an agricultural return sufficient only to pay the taxes on the land. Thus, while the cost of carrying a land speculation is reduced by the revenues from agricultural activities, agricultural returns alone are not sufficient to justify the investment.

When the market value of agricultural lands contains a significant valuation for ultimate potential in other more developed uses, there are other effects. First, of course, there is the generally acknowledged situation where it is virtually impossible today to justify buying land for grazing purposes. The cash flow that would be realized after an open-market purchase of the land is not sufficient to satisfy the investment criteria of even the most conservative investor. This statement is true even when full consideration is given to California's Land Conservation Act. Although this act's intent is to preserve agricultural lands for 10 or more years, its impact is not sufficiently reflected in market values for land located in agricultural preserves to permit an investor to acquire and then to manage agricultural lands in the coastal area.

This in no way suggests that there is no role for the Land Conservation Act in implementing the coastline policies. Instead, analysis of the economic returns from agriculture makes very clear that the "last straw" would (with certain exceptions noted below) be a requirement to pay taxes based on urbanized value for land, when the source for tax payment was an agricultural return. The point remains, however, that preferential tax assessment alone has not controlled market values to the point that lands can be acquired for purely agricultural purposes.

Beyond the direct and immediate impact of ad valorem taxation, another more subtle effect must be realized. Even if the temptation to accept "market values" for one's land during one's lifetime can be withstood by an owner committed to agricultural use, the inheritance and estate tax appraisers have no comparable motivation. The tax impacts that result from a quite realistic estimate of market values, upon the death of a landowner, can leave his heirs with no alternative but to sell and realize the development potential for agricultural land in the coastal area.

One upward pressure on the price of agricultural lands that is generally absent in the Bay Region's coastal area is that of the "hobby rancher", who is motivated as much by the lure of tax shelter as by any hope of an agricultural return on his investment. The major reason for this, however, is that the development potential in so much of the coastal zone's agricultural lands has already been reflected in the price; and even the tax-motivated weekend agriculturalist cannot justify holding the land for a sufficient number of years to prove out his investment. Instead, much of the land is now ripe for acquisition by those who can foresee a market and who have the capital to realize the land's development potential in the near future.

And here again a particular characteristic of California's land market must be realized. Much of the land in the coastal area is now owned by major organizations whose past pattern of business operations indicates a preference for land subdivision and/or development much in excess of their preference to continue in agri-business. But, even without the involvement of major organizations with impressive financial resources, there is ample capacity to undertake major developments on the coastline. The popularity in California of land investment syndicates permits a pooling of the financial resources of a number of investors, and provides financial capacity to acquire agricultural lands even at current market values, with the goal of resale or development within a very few years.

There are two issues that are generally viewed as working against the "market value vs. current cash flow" squeeze that exists on agriculture. First, there are agricultural uses that can be justified even if land is acquired at today's prices. There are crops such as cut flowers that provide a value and an immediate cash flow that is high enough not

only to provide an adequate return on land already owned, but to motivate an individual to acquire land and cultivate the particular crops. The other case, however, is less certain. Particular crops that depend critically on the soil and climatic conditions in the coastal area - artichokes and brussels sprouts for example - are often viewed as a special situation relevant to continued agricultural uses of the coast solely because such crops cannot be grown as profitably elsewhere. This argument ignores a purely economic (or "market") assessment of the problem, however. As the pressure for urbanization causes a rise in land prices, the market price of such crops as artichokes and brussels sprouts must increase - albeit in the face of falling demand. The effect may be social and cultural, as well as gastronomic: brussels sprouts may replace caviar as a delicacy; this is the result of a freely-functioning market. On the economic grounds alone, it is difficult to justify artificial protection of a non-basic crop solely because it is dependent on conditions unique to the coastal area.

The same argument tends to work against a more "basic" commodity such as milk. Dairying is an economic use of much of the agriculturally productive area in the coastal zone, provided that tax policy and certain controls on the free market continue to exist. Without tax policy and market controls, however, it must be conceded that an adequate milk supply could be provided if the dairy industry gradually ceased in the coastal area and other producing areas made up the difference.

These statements, of course, are made without reference to many of the other reasons for preserving agricultural use that are not reflected directly in a narrowly conceived and narrowly focused profit-and-loss statement. Agriculture is an economic land use if land areas are dedicated permanently to agricultural use and if assessed values reflect only agricultural returns. And, with a commitment to open space preservation, agricultural uses provide both an economic return to the landowner and a compelling offset to the costs of open space preservation. The very factors that work against continued agricultural land uses in the face of an unregulated appetite for land development work to preserve a role for agriculture if a more rational set of land use policies is adopted for the coastal area.

## Mineral Extraction.

Only a very small portion of the coastal area is devoted to non-fuel mineral quarries and commercial deposits. Nearly all the minerals now extracted on the coast can be recovered from inland quarries, and those which are unique to the coast have substitutes which are available inland. The price of these minerals will increase should the regional coastal policies and review criteria prevent the use of the coastline for their extraction, since areas which are less suitable and/or accessible will have to be utilized.

## PUBLIC COSTS, REVENUES AND BENEFITS

Public services for the areas shown as candidates for development on the growth/non-growth policy maps include: 1) road access, 2) basic water supply and liquid waste treatment, 3) police and fire protection, and 4) elementary and secondary education for permanent residents, as well as general governmental services. The costs to the public agencies (or in some cases private service organizations) for providing these services depend critically on many details related to the specific sites and areas where services are required. For example, the incremental cost of providing a basic water supply to a site depends critically not only on the terrain but on the current capacity of existing water supply facilities and the distance of these facilities to the proposed development.

Similarly, the user charges and general tax revenues that will be derived from a particular development depend on such factors as a public agency's policy for sharing the cost of infrastructure with the developer, for assigning connection charges, for using a system of user charges related to capacity instead of using a general tax rate, and so on.

More general revenue questions such as the impact of the development on the area's property tax base and its contribution to sales tax revenues depend on the particular pattern of development, whether it involves a balance of commercial and residential facilities, whether the use is primarily as a second home or recreational dwelling compared to a primary home, etc.

With all of these variables related to specific sites and to specific development proposals, it can be extremely misleading to



generalize about the public costs of development compared to the total public revenues that will be derived because of the development proposal. In the past, much attention has been given to detailed analysis of specific sites. Studies have been done by proponents of development projects who may tend to emphasize tax revenues (particularly property tax revenues) without paying careful attention to the costs of services, and by opponents of development who might look narrowly at the confines of a particular land area without considering tax revenue impacts that "spill over" the boundaries of the particular project. Thus even when a specific site and a specific development project are considered, disputes are possible and very careful attention must be given to an analysis of costs and revenues to avoid misleading or erroneous conclusions.

Given the above cautions about the danger of drawing unwarranted conclusions from a generalized analysis of public costs and revenues, certain observations can be made.

Early in this coastal planning process a series of generalized and average comparisons were made for the public service costs and revenues of selected development patterns in the coastal counties. These calculations were, of course, based on assumptions that totally control the results, but they were realistic and representative of specific sites that had been analyzed in the past. Some of the key assumptions included:

Buildout rates on lots primarily for second home use would be significantly higher than the very low California-wide averages. The assumed lot prices were high enough to suggest that purchase for speculative resale would be less likely than in lower-cost land sales.

Costs of providing project and site public services infrastructure would be borne by the purchaser rather than shared with the public agency.

Construction costs for second homes would be appropriate and proportional to the estimated cost of the lot.

The split between primary residence (with families demanding the full range of public services) and second home or recreational use that was estimated in the growth/non-growth analysis would be maintained over a 20-year period.

Under these very optimistic assumptions (and considering only property tax revenues) the cases that were evaluated all indicated property tax revenues were significantly in excess of the incremental costs for providing public services.

It must be noted again, however, that these calculations were based on averages rather than on specific sites and were intended primarily to provide a first estimate of where second home and primary residential development pressures might be satisfied with minimal use of conflict lands. Special public service problems or environmental impacts caused by public facilities were not evaluated, and the basic assumptions precluded adverse impacts on the public tax base because of such problems as tax delinquencies that have been suffered by local governments as a result of speculative and premature subdivisions in California.

Nonetheless, since the average calculations were based on actual development experience, a point that must be considered is that under carefully controlled conditions, development - particularly second home development - need not provide a public cost that even approaches the public revenues that will be paid.

Beyond the direct costs and revenues for public agencies actually provided in the coastal area, other public benefits that will accrue throughout the region because of the regional coastal policies have been described in other sections of this report. Not only is a major element of the region's open space element supported and strengthened by the coastal policies, but a resource that, in 1980, will supply an estimated 27 million recreation days will be preserved.

## ECONOMIC POLICIES AND A MONITORING PROGRAM

Many of the policy statements for the coastal area are intended to serve as guides for future actions by private interests and public agencies who are concerned with the use and non-use of the coast. The following guidelines and policy statements are concerned specifically with the economic aspects of permitted and excluded uses in the region's coastal area.

### Cost/Impact Analysis of Specific Sites

The feasibility of development - and in some sense the practicality of implementing the coastal policies - depends criti-

cally on the magnitude of costs and revenues; and it depends as well on the relative gain or loss to various groups or institutions within the society.

The public agencies in the Bay Region, and particularly in the coastal area, are often as profoundly affected as those directly involved in the development proposal. For example, development financing through the use of special assessment bonding can ultimately affect the faith and credit of the public agency; and hookup charges for certain public services that are not realistic can provide either an unanticipated premium or an unfair burden to the development project. At the same time, of course, subdivisions or other projects – and particularly lot subdivisions that are not developed for a great number of years – may return tax revenues substantially in excess of the cost of providing any public services.

Decisions in the future about specific proposed uses of the coastal area should be made only after a careful assessment of the full range of costs and impacts that will result from the development project.

#### Monitoring the Market

It is the essence of the market mechanism that scarce resources are allocated to those who deem them most valuable. While the price system and perfect competition may work adequately in some parts of our economy, the obvious externalities in the coastal area prevent the use of the coast being determined by the highest bidder. These externalities have led to the policies recommended in this report. However, the attempt to replace market allocative mechanisms with public controls will have unforeseen results; for the interdependencies in an economic system are just as subtle as in any ecosystem. A program of monitoring economic activity in the coastal area and monitoring the results of the coastline policy should be established so that the policies will continue to respond to future conditions.

Specific activities and problem areas that should be monitored include:

actual land uses and buildout rates in recreational subdivisions, as an indicator of whether the supply is expanding overly rapidly;

trends in consumption of agricultural products or in agricultural practice that may affect the economic viability of agriculture; and

new technologies or industrial demands (e.g., for major off-shore tanker ports or for off-shore nuclear power plants) that may require new policy responses.



## VI. INSTITUTIONS AND POWERS

In California, a new perception of environmental problems, as well as the growing realization that many smaller municipalities within larger regions and growing financial needs can have a marked impact on their surroundings, has led to increasing attempts to institutionalize regional planning. The interests that this has influenced and the typical polarization along economic, political, and social lines is nowhere more evident than along California's coastline.

The recent legislative struggles, and now the effort to pass an initiative, have focused on several major issues; but probably the most significant has been the issue of "regionality". Other issues including appropriate boundaries, commission make-up, "grandfathering", exclusions, etc. are complex and controversial, but probably more solvable.

Two other crucial issues are what new forms of powers, and new kinds of procedures legislatively authorized, should be a concomitant of any new institution. A related issue is the organization and relationships among State, regional and local agencies, many with existing responsibilities and functions relating to matters affecting the coastline. Hence, these three issues - function, organization and powers - are addressed in the following discussion. This is far from an exhaustive or definitive treatment, but should serve to provide a framework for future legislative action (assuming that none is taken this year).

The following discussions deal only with those issues which either are related to planning proposals or which are considered essential to develop a planning process appropriate to coastline planning.

### ALLOCATION OF FUNCTIONAL RESPONSIBILITIES

It is our basic assumption that there is some role in planning for the California coastline for all four levels of government - the State, one or more regional commissions, the counties, and the scattered municipalities on the coastline. Once the federal government has more clearly enunciated its interest, it doubtless will play a major role as well.

Among these, the role of the regional commission is the most complex and controversial, primarily because such commissions do not now

exist in California (except for the highly specialized BCDC, and the congressionally-created Tahoe Regional Planning Agency).

The Ocean Coastline Agency must exercise appropriate controls so that important areas of regional open space are conserved and urbanization is confined to specified areas. Within the areas to be mapped for appropriate ocean-related activities, the regional agency should exercise controls to ensure that only those uses are allowed. However, given the major policy areas of open space and conservation, urbanization and environmental pollution, the regional agency would have the paramount, but not the sole role. For instance, the policy area of open space and conservation is a responsibility of all levels of government. The preservation of scarce agricultural resources (e.g., artichokes, brussel sprouts, etc.) demanding a coastal environment, should be a State role. The preservation of lands for shaping urban areas or channelling growth should be a regional role; the preservation of open space for public safety, e.g., the designation of flood plains, seismic areas, etc. should be a county role; and the location of small recreational spaces should be a city (if one exists) role. Hence, each major function can be thought of as including a bundle of "sub-functions" which may be distributed to different levels of government, and within its area of jurisdiction, the coastal regional organization and the counties and cities should have shared jurisdiction.

## ORGANIZATIONAL IMPLICATIONS

The organization of the agency which will assume the Ocean Coastline Planning function in the Bay Region could take several forms. At present, consolidated regional government, with centralized authority over all regional issues, is a remote possibility. A separate ocean coastline planning agency is a further possibility, either as an outgrowth of statewide legislation or initiative, or possibly upon enactment in 1973, as an agency created only for the Bay Region, similar to BCDC.

These represent the ends of the spectrum of organization. A middle-position alternative - an "umbrella" regional government, with a constituent ocean coastline planning agency as one sub-unit, may be the most effective and, even feasible, alternative. A similar possibility, is the investing of ABAG

with powers to influence regional facilities and services and to administer necessary regulatory powers and revenue sources as deemed necessary to carry out the ocean coastline conservation function (as well as others). The only difference between the latter two - umbrella and ABAG-amplified - may be the constituency of the decision-making body, and even this might not differ greatly after the legislative process was completed.

The following is a review of the three major groups of organizational alternatives:

#### Alternative I - Ocean Coastline Agency

A separate ocean coastline agency with its own policy-making board would be forced to operate in the absence of an overall regional growth policy which would be binding. It could be based on the adopted regional planning policy of ABAG, but if this were not formally recognized and respected by the agency, it would not provide the needed planning coordination. Existing special purpose agencies and districts would remain operative within the coastal area, and generally would continue to make decisions regarding development, although perhaps constrained by some referral system or even some control over public physical developments. (BCDC has such authority, although it exercises it sparingly, and for crucial decisions.)

#### Alternative II - Consolidated Regional Government

A consolidated regional government would unify, under the responsibility of a regional legislature, all presently separated jurisdictional authorities. Within a broad overall structure, a coastline unit could operate to develop specialized information and would exercise some planning and regulatory functions, but would not have a decision-making body separate from other functions.

#### Alternative III - Limited Regional Government (New "Umbrella" or ABAG Expansion)

The umbrella arrangement represents a middle course between a semi-independent Ocean Coastline Agency and the inclusion of an ocean coastline Consolidated Regional Government. The constituent agencies and including a new coastline agency, would retain policy-making responsibility, while the regional

legislature could "regulate", "coordinate", and make policy-determinations, and could function as an appellate body in case of dispute. The constituent agencies would have their own decision-makers, but the regional legislative body would be responsible for major region-wide decisions; these would include overall regional planning and capital improvement programming.

An expansion of the powers of ABAG could result in this form of coordinated umbrella. This would mean that the legislature would first have to invest ABAG with overriding powers.

## EVALUATION OF BASIC ALTERNATIVES

Under Alternative I, an independent Ocean Coastline Agency would be able to exercise influence over coastal planning primarily through its planning and regulatory powers. It would control land use, acquire easements, and through design review and planning assistance, influence coastal development.

One weakness of this arrangement would be a tendency for present inter-agency conflicts to remain, without any attendant advantage of presenting a balanced picture of issues to the public. This potential would put a heavy premium on voluntary coordination and mutual assistance among the regional agency. An effective independent Coastline Agency would require authority for the Coastline Plan to be binding on all other programs affecting the coastal area. In addition, the agency should have the authority to develop a wide range of policies to support its own operations.

A Consolidated Regional Government, Alternative II, seems ideal in many ways. It could adequately develop financial resources. It would have both the incentive and the authority to place the Coastline Plan in the context of a larger regional plan and in other ways coordinate acquisition, development, and operating programs of different regional units to support Coastline Plan policies. A Consolidated Regional Government could coordinate inland development with Coastline programs. The activities of the regional legislature would attract wide public attention to regional issues.

Within this government some of the functions of the Ocean unit, for instance, planning and land acquisition, could be transferred to centralized staff units. This reallocation of



operations would help effectively to resolve some organizational conflicts and achieve operating economies. On the other hand, some problems of coordination may only be internalized. A potential danger is that excessive internalization of conflict may restrict public access to the planning process. Finally, however, the Consolidated Regional Government may not yet be politically acceptable.

Alternative III, the Umbrella Regional Agency, with a coastal agency, would combine advantages of a separate Coastline Agency with those of a Consolidated Regional Government. The constituent Coastline Agency would retain initiative over coastal planning policies. At the same time, it would have a definite mechanism for securing coordination, airing and settling conflicts, and facilitating adjustments with other program agencies. Resources and common staff and auxiliary services could be pooled and shared by the constituent agencies. Interagency communication and coordination procedures would be less formalized. Agency identification with programs would be balanced by the ability of the regional body to make organizational adjustments.

The disadvantages of the umbrella alternative would arise from the absence of definitive internal regulatory procedures. Agency loyalties would persist. The regional body's veto power could give rise to counter-productive tensions. The Coastline Plan and its objectives could suffer the drawbacks of compromise.

In recommending one of these arrangements we have considered the basic issues and policy goals set forth earlier. We have examined the responsibilities of a Bay Area regional agency and the authority necessary for effectiveness. Final choice of an alternative depends both on the degree to which the alternatives fit planning requirements and, to some extent, on an evaluation of acceptability in the political arena.

The analysis of the three alternatives has suggested that the alternatives, moving from a Coastline Agency to an Umbrella or Limited Regional Agency to a Consolidated Regional Government, increasingly satisfy the planning goals stipulated. In the absence of considerations of political acceptability, then, we would recommend the Consolidated Regional Government.

However, it appears that a consolidated regional government may not presently be acceptable. Hence, this report, while supporting a consolidated regional government as a worthy ultimate goal, does not explore this alternative in depth. On the other hand, we also reject Alternative I, the Coastline Agency, as a permanent solution, because essentially it would perpetuate the fragmented forms of regional decision-making that now exist.

Certainly, one of the most cogent findings of this study has been the very close relationship between regional conservation and overall regional growth policies. To reduce the pressure for development on the coastline, some channeling of such pressures must be made elsewhere. Moreover, to effectively acquire major parcels along the coastline, the benefit to, and responsibility for, the coastline must be conveyed to the rest of the region. Finally, the things that end on the coastline or whose effects are felt on the coastline, e.g., freeway, power lines, dams, start or are located in the "hinterland".

In summary then, although a coastline agency may be necessary for an interim planning period (and may indeed be enacted shortly), at least for the Bay Area, it is far from the ideal arrangement.

## NEW AND AMPLIFIED POWERS FOR IMPLEMENTATION

A prior section of this report described the planning and regulatory policies which should be utilized to achieve the goals and substantive policies previously indicated. In this section, we will discuss the powers which are proposed to implement these policies.

### Public Facilities

A basic premise reflected in the accessibility and service level policies is that control over highways and sewer and water facilities means control over growth. To achieve this will mean that two kinds of agencies which now undertake their own functional planning must be brought more directly within the planning process. These include the District office of the Division of Highways and the Local Agency Formation Commissions of each County.

The influence over decisions of the State Division of Highways is limited to the local control over the closing of streets, the review of highways across coastline coves by the Resources Agency and the State Lands Commission, and assorted and generally incidental powers in the Public Utilities Commission, the Park Commission and others. However, the key factor is the selection of routes and their designs. The route selection procedure is not fully described in State law; it is within the area of administrative guidelines. Those steps which are described in State law include: adoption of a resolution by the commission spelling out the procedure to be used in study of a route; authorization for the study; consultation with local jurisdictions, recommendation by the department to the commission; provision for special requests to be made by public agencies for public hearings/transmission by the local jurisdiction of information it wished presented; public hearings; route adoptions, and execution of freeway agreements.

Clearly, the missing link in this series of steps is some form of requirement for referral of proposals to regional agencies concerned with environmental planning for review and approval. Hence, we recommend that in the coastal area, any proposal for development of a highway extension be the subject of a development application which would be reviewed for its conformity with the coastline plan. Obviously, the influence over the State Division of Highways would be greater if the coastline plan were presented and adopted in a single statewide plan by a State agency, which would have some parity with the State Highway Commission and the Division of Highways. However, it should be made clear that many of the most crucial decisions are made at the District (Regional) level, processed upwards, and after approval, processed downwards. Thus, there would be a measure of parity at the early stages in the route selection and the design process. At present, of course, the council of governments with A-95 review power has authority to comment on all proposals involving federal funding. However, these are advisory and not binding on the funding agency, although if a regional plan supports the position, it would be difficult to overturn.

The Local Agency Formation Law, enacted in 1963, provides the focus and opportunity for influencing the creation or annexation of districts involved with sewer and water facilities. Although many LAFCs work closely with their planning commissions and departments in establishing "spheres

of influence" and in making decisions on local agency formation, greater more specific inputs are required from environmental standpoints. To achieve this end, we propose that a joint meeting of the Local Agency Formation Commissions and Staffs of the coastal counties be held, along with the Planning Commissions and Directors. The purpose of this meeting will be to start the process of adopting guidelines for review of new formations and annexations, as these relate to the emerging and, ultimately adopted, coastline plans.

### Regulation

It has been proposed in Chapter IV that the regional agency designated to carry out the Ocean Coastline Element of the Regional Plan be granted the power of regulation. As indicated in Chapter IV, this power is proposed to be shared with local governments, both in terms of focus of regulation (i.e., what kind of use or development is being regulated - agriculture, geological hazard areas, etc.) and in terms of procedural review of developments (i.e., regulation of use, siting, impact, etc.).

Regulation on the coastline should be both on a case-by-case review basis, with decisions guided by and subject to detailed planning criteria and, in some instances, precise controls, based on the plan, but supplemented by certain zone designations. The proposed procedure resembles the conditional use permits common in local zoning, although the criteria proposed to guide decisions are far more precise than the usual criteria for conditional uses, and, in some instances, quite limiting.

The case-by-case method is the only one that will work now in this situation. The parts of the coastline are too diverse - in location, open space values, geology, ecology, and economics - to adopt rigid rules intended to cover all situations. For some questions, such as what building techniques are required for hazard areas, information is not and cannot be available except on a project-by-project, area-by-area basis. Flexibility to deal with particular physical conditions and particular objectives, and flexibility to adjust to change, call for a system of administrative review. Reliance on traditional zoning methods is too inflexible, and must be based on information not generally available for unurbanized areas. Such zones also would need constant amendment.



To facilitate such review the coastal agency should be required to: include in the adopted coastal element an adequate basis for regulation; hold hearings on each application with sufficient notice; make separate findings relating to applicable criteria; allow appeal of each ruling to some other public agency or the courts.

This system of "administrative review", and underlying zones for certain purposes, combines planning and regulation. This should result in both better planning and better regulation. Part of the advantage of the administrative review process will be to build up a file of increasingly more precise data and policy. Individual plan and permit decisions will gradually determine many larger policy issues.

Although administrative review based upon precise criteria will be the basic form of regulation, we also propose selective use of the "specific plan" in critical areas. These may be prepared by the coastal organization jointly with local agencies. Such plans may include proposed regulations limiting the use and management of land and open spaces. This procedure is not limited by the restraints on zoning, e.g., uniformity of application, complex procedures, minimum size of zones, etc. Hence, the State Law provisions should be used as precedents in framing an equivalent power for the coastal agency. Such plans could either be directly binding "zoning-type" regulation, or could strictly guide administrative discretion.

Requiring dedication for public use of the coastline has a precedent in the practice of many cities and counties which require subdividers to dedicate land for parks to serve the residential population (or, where such dedication of land is infeasible, to pay a charge in lieu of dedication). A developer should be required to dedicate a certain percentage of his coastline for public access and use, or to pay an in-lieu fee. Such fees in lieu of actual land dedication have been upheld to offset the costs of neighborhood parks in subdivisions, when the payment bears a reasonable relationship to the use of the park and recreational facilities by the future inhabitants of the subdivision.

AB 1301, enacted in 1971, provides new criteria for the regulation of subdivisions. A new section requires the governing body of a city or county to deny approval to a final or tentative subdivision map upon making any of the specified find-

ings. One of the grounds for denial is that the design of the subdivision will conflict with existing public easements for access through or use of the property. The subsection expressly restricts consideration to easements of record and easements established by final judgment, and also allows the governing body to approve the proposed subdivision if it finds that alternate easements are available.

AB 1301 does not amend or repeal the existing provisions of the Subdivision Map Act which require reasonable public access to the tidelands as a condition of approval for all proposed subdivisions located on the coastline. Section 11610.5, added by the statutes of 1970, required that if existing alternative public access were not available within a reasonable distance of the subdivision, the subdivider must dedicate new access routes. The city or county has the responsibility for determining what constitutes reasonable public access based upon the size of the subdivision, the likelihood of trespass, the uses appropriate to the types of coastline and the mode of travel used on the access route. However, the statute does not require a subdivision to provide for public recreational use of the lands above the line of mean high tide.

Dedication of regional open space ~~might~~ also be required of non-residential as well as residential developers. This could be done either on a proportion-of-regional-needs basis or by the designation of specific sites.

### Acquisition

Acquisition of interests in real property will be one of the ways of carrying out the coastal element, but there is need to reduce both the initial and the total long-term costs of acquiring those interests that should be acquired.

The coastal agency could acquire coastal area lands by eminent domain and doubtless meet the "public use" test of the State Constitution. Advance acquisition, the condemnation of land far in advance of need, or "land banking", is somewhat novel, but has usually been upheld by the courts. It would be a useful tool for the coastal agency to influence development and save public money by buying in advance of land value inflation.

Excess condemnation, the taking of more land than is needed for the public facility involved in the taking, is an important

tool. It can enable the coastal agency to acquire properties that are surplus to the needs of other governmental agencies, especially the State Division of Highways and the Department of Parks and Recreation, and perhaps allow the coastal agency to share in profits resulting from appreciation in land values that result from public planning and development.

Acquisition of "development rights" or "conservation easements" could be a useful tool in carrying out the coastline plan, but there are serious questions about use of this method. One is how to define the rights taken and those retained by the owner. A second question is whether development rights in the end cost much less than the full fee would cost. Experience varies, but suggests that there is a meaningful saving only when the rights or easements are acquired before the land is ripe for development. At best, such rights will usually have to be sold voluntarily by private owners; condemnation of such rights is particularly difficult.

Devices for gradual acquisition of fee ownership are valuable in reducing the initial outlay of funds that might be required to carry out the plan, even with a strong program of regulation. Purchasing an option or requiring owners to notify the coastal organization whenever they propose to develop or to sell their properties will afford insurance against the buildup of development pressures that regulatory powers would have difficulty withstanding. Purchase at the request of land-owners ("inverse condemnation") may be used as a means of deferring, until development would otherwise have occurred, the payment of compensation (if there is to be any) for denial of development permission. Such "compensation" should be accompanied by an equivalent "development charge" upon owners who did obtain development permission. Installment purchase can only work in voluntary sales, but can be an effective way of spreading the cost of acquiring private properties over a number of years.

Acquisition followed by disposition allows the public to control use of properties to a greater extent than allowed by usual forms of regulation, while offering the opportunity to the public to recover some of the increase in the value of the properties that results from public actions or expenditures. Urban renewal is a tool that has already been used throughout the United States for improving shoreline areas.

Chapter 1434 of the Laws of 1971 added a section to the California Community Redevelopment Law declaring as a matter of State policy a seashore is a blighted area for purposes of redevelopment when characterized by a decline in the coastal environment, including recreational and aesthetic values, or when there is a need for public beach areas and public access thereto.

Chapter 1434 amends Health and Safety Code Section 33430 relating to the property disposition authority of the redevelopment agency. The new subsection (b) adds to the general powers statement a qualification that coastline property acquired under this shall be used only for public purposes. Presumably, this qualification will be given a strict interpretation as distinguished from the broader general welfare concept used to sustain other uses and transfers of condemned property. With this qualification, there does not appear to be a great potential for changing the use of such lands, even if this were a key objective, which in most instances it is not.

Yet the authorization still allows the use of a tool, becoming increasingly popular in California, for financing open space - tax increment financing. Under this approach, if major undeveloped areas on the coastline were declared redevelopment areas, any increase in taxation arising from a rise in assessed valuation after the actuating date could be pledged to retire bonds floated to acquire key open lands. It is suggested that this approach might be widely used in areas where development is acceptable but which could have an impact on its surroundings. It would be fitting for such improvements to provide the leverage to ameliorate its own impacts.

Purchase and sale-back (or lease-back) under conditions is a means of obtaining desired limitations on uses of property with reduced capital investment. The more stringent the limitations, however, the greater would be the difference between the purchase price paid by the coastal agency and the price it would receive upon resale.

The same kind of limitations could be imposed by covenants running with the land, by agreement between an owner and a public body. But covenants are subject to such legal complexities that other means of accomplishing the same ends should be preferred.







# **TECHNICAL APPENDIX - SURVEY AND ANALYSIS OF EXISTING ENVIRONMENTAL CONDITIONS:**

OPEN SPACE RESOURCES; DEVELOPMENT  
ASSETS AND CONSTRAINTS

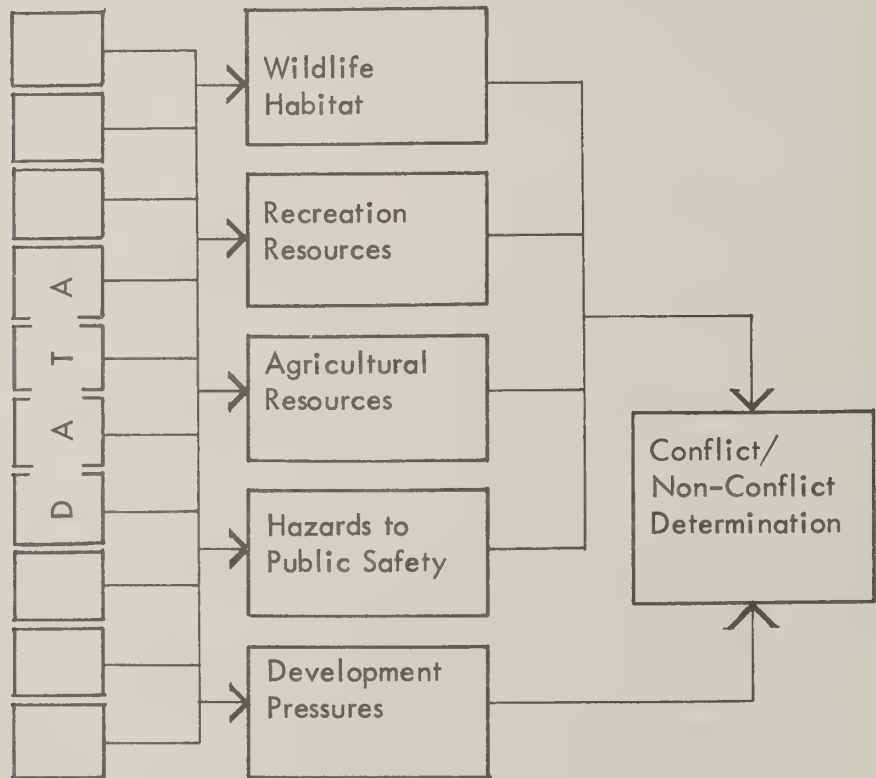
## INTRODUCTION

This appendix deals with the opportunities for, and the constraints to, man's use of the physical resources of the coastal areas of Sonoma, Marin, San Francisco, and San Mateo Counties. Included are descriptions of the data collected, the maps prepared, the analyses conducted and the method used to determine these opportunities and constraints.

The Ocean Coastline Element of the Regional Plan has been prepared as a regional approach to the goals of 1) conserving the natural resources of the coastal area, especially those unique to the area, while 2) utilizing the coastal lands and waters in a manner that produces maximum benefits for existing and future populations of the region. Based upon an initial reconnaissance and subsequent analysis of the issues pertinent to the coastal areas of the four counties, the regional coastal area was defined and a set of preliminary regional coastal policies prepared. These provided the initial direction for the collection and analysis of data pertinent to the opportunities and constraints presented by the region's coastal area. Combined with responses from the public and from the various ABAG committees, the regional coastal resource itself, as revealed through the data collection and analysis, provided the basis for the preparation of the hierarchy of regional coastal policies, ranging from the general policy framework to the specific locational policies and the review criteria.

## SUMMARY OF METHOD

### Outline of Data Collection and Analysis



Within the limitations of the study, relevant and available data has been assembled that reflects the diversity of the coastal resource and has been committed to the series of thematic work maps described below. Opposite each is listed the scale, an indication whether the map is reproducible, and the number of sheets, if more than one. All maps prepared by the consultants will be filed at the offices of the Association of Bay Area Governments at the conclusion of this study.

Due to the very short duration of this study and the regional context within which the issues and data have been analyzed, certain adjustments have been made in the data collection and analysis process. Since current ownerships or existing state of development in some portions of the coastal area represent constraints that cannot be reversed within the foreseeable future, they have been subject to less-detailed analysis so that key issues might be addressed more fully. For



example, Point Reyes National Seashore is an exclusive responsibility of the Federal government, and so the data collection and analysis has not been conducted in the same depth as for private land holdings subject to development pressure. Similarly, the urbanized portions of the coastal area have already preempted areas of high open space value; therefore less analysis has been performed in these areas, and more attention directed to outlying areas where preservation and proper utilization of major open space resources are still possible.

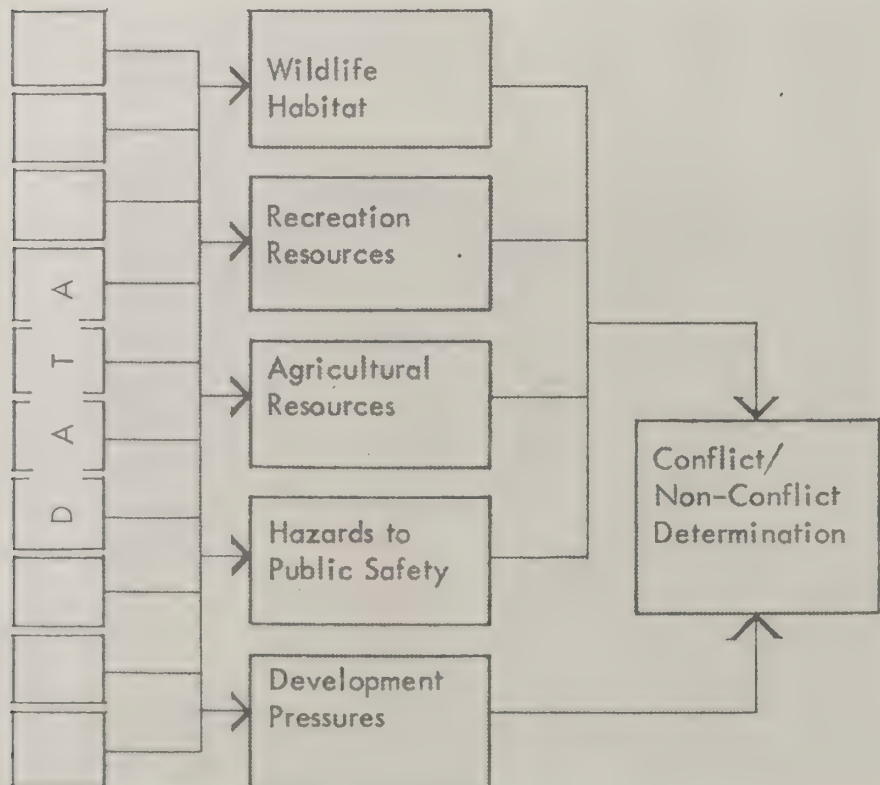
List of Data Maps Prepared:	Scale	Sheets	Repro
Visual Resources	1:24,000	24	No
Ocean Coastal Marine Resources	1:62,500	2	No
Scientific and Educational Study Areas	1:62,500	2	Yes
Acknowledged Recreation Resources	(See CDOC Maps: Recreation Resources)		
Climate and Agricultural Soils	1:62,500	1	No
Vegetation and Grazing Soils	1:62,500	1	No
Slope	1:62,500	7	No
Seismic Response	1:62,500	2	Yes
Earth Stability and Flood Hazard	1:62,500	4	Yes
Known Problem Soils	1:125,000	1	No
Seismic Sea Wave Hazard	1:125,000	1	No
Land Ownership	(See CDOC Maps: Relative Development Pressures)		
Land Use	1:62,500	1	No
Infrastructure	1:62,500	1	No
Land Use Controls	1:62,500	1	No

Information from these work maps, as appropriate, has been transferred to a series of Conservation and Development: Opportunities and Constraints (CDOC maps, all reproducible and at a scale of 1:62,500, as follows:

Wildlife Habitat  
 Recreation Resources  
 Agricultural Resources  
 Environmental Hazards to Public Safety  
 Relative Development Pressures

Selected information from the CDOC series, based upon the criteria in the general policy framework and the need for specific and locational policy implications and the analysis of the physical coastal resources, has been used in the preparation of a High Open Space Values map. These High Open Space Values are those shown in the body of this plan as the Open Space Policy map in Chapter III.

#### SUMMARY OF BASIC DATA MAPS



For each of the thematic work maps there is a brief description of the data input, as well as references for the sources of each data type.

### Visual Resources

Several analyses were made to determine the presence of ocean related views and the nature of these views. The analyses considered three distinctive situations: 1) the views as seen from the major roadways adjoining the coast; 2) views as seen from significant viewing locations such as public parks and beaches; and 3) views from those lands within the primary coastal planning area.

Views from the roadway were documented in the field by use of recording sheets employing the following notations.

Position. The view position was recorded as to the general vertical and horizontal distance from the actual coastline.

Extent of View. Notation was made of the extent of views both to the coast and upland side of the roadway. Three categories - immediate (less than 300 feet), intermediate (300 feet to approximately 2,500 feet), and distant (beyond 2,500 feet) - were used.

Type of View. The presence of panoramic, local or glimpsed views or absences of views were noted.

Character of View. The character of the view, both to the coastal side and upland side was recorded noting whether the respective areas were in a natural state, either forested, grassland, brush, or special category such as marsh, under cultivation or in a urbanized or semi-urbanized state.

View Components. Key elements composing the view such as beaches, trees, dunes, marine facilities, residences, etc. were noted.

Overall Rating. Finally an overall ranking employing four values - excellent, good, fair, and poor - was assigned to the respective sections of the coastline.

The notations on the field sheets were supplemented by color 35mm slides and taped commentaries. The types and extent of views were then transferred to U.S. Geological Survey 7.5 minute quadrangle maps. On the same sheets, land areas from which coastal views are present were also mapped to provide a composite documentation of major coastal related views.

## Ocean Coastal Marine Resources

This mapping includes coastal bathymetry and eight coastal wildlife habitat types. The numbers following each of the data types indicates the specific reference, agency, or individual from which the information was derived.

Beaches, sand dunes, and spits: 4,5.

Mudflats: 4,5.

Salt Marshes: 4,5.

Freshwater Marshes: 2,4,5.

Estuaries and Lagoons: 2,4,5,6.

Major Rocky Intertidal Areas: 1,3,5,7.

Shellfish Culture Areas: 7.

Anadromous Fishes Spawning Grounds: 7.

Bathymetry: 5.

### Publications:

1. Hedgpeth, Joel W., Seashore Life of the San Francisco Bay Region and the Coast of Northern California. University of California Press. Berkeley. 1970.

2. State of California, Resources Agency. Protected Waterways Plan. 1971.

3. State of California, Resources Agency, Department of Fish and Game. A Summary of the Marine Environment from Fort Ross, Sonoma County to Point Lobos, Monterey County. 1968.

4. State of California, Resources Agency, Department of Navigation and Ocean Development, Comprehensive Ocean Area Plan. General Inventory, Land Use-Site Characteristics. 1971.

5. United States, Department of the Interior, Geological Survey. Miscellaneous 7.5 Minute Series (Topographic) Quadrangles for the study area.

### Personal Communications:

6. Gregg, Harold. Marin Conservation League, San Rafael, California. January, 1972.



7. Smith, Emil. State of California, Resources Agency, Department of Fish and Game. January, 1972.

### Scientific and Educational Study Areas

This data collection includes all known existing scientific and educational uses and proposals for use by public agencies, institutions, and responsible persons in the scientific and educational communities for setting aside areas of wildlife habitat or unique natural features for protection and study. Following each of the data types, the number indicates the specific reference, agency, or individual from which the information was derived.

Areas designated by the California Natural Areas Coordinating Committee as important scientific and education areas: 6.

Unusual or unique geological features designated by the U.S. Department of the Interior, Geological Survey: 5.

Proposed marine biological reserves and areas needed within the next 15 years for educational purposes as designated by California colleges and universities: 1,2.

Public and private areas presently available to California colleges and universities for educational use: 1.

Marine reserves and other existing preserved marine habitat lands (excluding public park lands): 4,7.

Candidate bays and estuaries for marine reserve status as designated by the State of California, Department of Fish and Game: 1.

Proposals for coastal landscape preservation by the State of California, Department of Parks and Recreation: 3.

Areas now used for educational purposes, but not presently included in formal proposals for preservation: 4,7.

Wildlife waterways as identified by the State of California, Resources Agency: 2.

Publications:

1. Rechnitzer, Andreas B., Marine Sciences in California Institutions of Higher Education. State of California, Coordinating Council for Higher Education. Report #1037. 1969.
2. State of California, Resources Agency, Protected Waterways Plan. 1971.
3. State of California, Resources Agency, Department of Parks and Recreation, California Coastline Preservation and Recreation Plan. 1971.

Personal Communications:

4. Arkley, Dr. Rodney, University of California, Berkeley, February, 1972.
5. Gulliver, Rachel. Research Assistant, United States Department of the Interior, Geological Survey. January, 1972.
6. Hood, Leslie, Director, California Natural Area Coordinating Committee. January, 1972.
7. Smith, Edmund, Director, Pacific Marine Station, University of the Pacific. January, 1972.

Acknowledged Recreation Resources

All areas of known public ownership were mapped that have possible recreation value, even though not all are presently in recreational use. All streams that have potential for canoeing or that are steelhead or salmon spawning areas are shown. Recreation resource areas identified by the various Federal, State, and local agencies concerned with recreation as evidenced by proposals for public acquisition for recreational or landscape preservation purposes are included.

Publications:

County of Marin, Planning Department, Marin County Parks and Recreation Plan 1990, 1965.

County of San Mateo, Regional Planning Committee, Parks and Open Space: A Program for San Mateo County. June, 1968.

-----, Ways and Means Committee of the Regional Planning Committee, Parks and Open Space: Financing the Plan. January, 1971.

State of California, Resources Agency, California Protected Waterways Plan. February, 1971.

-----, Department of Fish and Game, California Fish and Wildlife Plan. 1966.

-----, Department of Parks and Recreation, California Coastline Preservation and Recreation Plan, June, 1971.

Troost, Carl, Editor, "Canoeing, Kayaking and Rafting in California", in California Protected Waterways Plan, State of California, Resources Agency. February, 1971.

Personal Communication:

Vail, Wesley, County of Sonoma, Planning Department. January, 1972.

### Climate and Agricultural Soils

Recently-completed plantclimate information has been used to determine the inland extent of the climate zone most frequently identified as necessary to the economic production of coastal-dependent specialty vegetable crops. The soil survey for each county has been reviewed to determine those soils most capable of producing good yields of these specialty crops - artichokes, broccoli, brussels sprouts, and cauliflower. The best production areas for these crops in this region are in San Mateo County, have soils of the Tunitas-Lockwood and Watsonville-Elkhorn soil associations, and are within the Maritime plantclimate zone. These soil and climate conditions were compared to the remaining counties and generally similar soil and climate conditions were selected for inclusion within the prime agricultural lands classification. The next-best areas for the production of these crops also have soils of the Tunitas-Lockwood and Watsonville-Elkhorn soil associations, but are in the Coastal plantclimate zone, just inland from the Maritime zone.

Publications:

Association of Bay Area Governments, General Soil Map, 1966.

- - - - - , Land Capability Classification (map), 1966.

United States, Department of Agriculture, Soil Conservation Service, Soil Survey, San Mateo Area, California. 1954.

- - - - - , A Supplement to Soil Survey, San Mateo Area, California. 1969.

- - - - - , Report for General Soil Map, Marin County, California, 1967.

Personal Communications:

Gilbert, Dewayne E., Extension Bioclimatologist, Department of Agricultural Engineering, Agricultural Extension Service, University of California, Davis. Personal communication and working maps of plantclimates for Sonoma, Marin, San Francisco, and San Mateo Counties. February, 1972.

Kimball, Marston H., Extension Bioclimatologist (retired), Agricultural Extension Service, University of California, Davis. January, 1972.

Miller, Vernon C., Soil Scientist, United States Department of Agriculture, Soil Conservation Service. Sonoma County. Personal communication and mimeographs of selected soil series descriptions. March, 1972.

Vegetation and Grazing Soils

Mapped soils information, together with the county soil surveys have been reviewed to determine those soils most suited to grazing operations, and have been grouped as follows:

Group 1: Best Grazing Soils

Pajaro Association (Sonoma, Marin)

Yorkville-Suther Association (Sonoma)

Pleasanton-Zamora Association (Marin)

Sweeney-Mindego Association (San Mateo)



Group 2: Good Grazing Soils

Rohnerville-Kneeland Association (Sonoma, Marin)

Steinbeck-Los Osos Association (Sonoma, Marin)

Los Osos Association (Marin)

Santa Lucia Association (Marin)

Lobitos-Gazos Association (San Mateo)

Lobitos-Gazos-Santa Lucia Association (San Mateo)

Los Gatos-Hull Association (San Mateo)

Tierra-Colma Association (San Mateo)

Watsonville-Elkhorn Association (San Mateo)

Group 3: Adequate Grazing Soils

Hugo-Laughlin-Josephine Association (Sonoma)

Miramar Association (Marin, San Mateo)

Laughlin-Parrish Association (Marin)

Miramar-Sheridan Association (San Mateo)

Group 4: Soils Not Suitable for Grazing

Because of management constraints or general unsuitability for grazing, all other soil associations have been included in this category.

Publications:

Association of Bay Area Governments, General Soil Map, 1966.

- - - - , Land Capability Classification (map), 1966.

United States, Department of Agriculture, Soil Conservation Service, Soil Survey, San Mateo Area, California, 1954.

- - - - , A Supplement to Soil Survey, San Mateo Area, California. 1969.

- - - - , Report for General Soil Map, Marin County, California, 1967.

Personal Communication:

Miller, Vernon C., Soil Scientist, United States Department of Agriculture, Soil Conservation Service. Sonoma County. Personal communication and mimeographs of selected soil series descriptions. March, 1972.

As a refinement to the soils interpretations, vegetation data has also been added to determine those suitable soils upon which grazing would be feasible without extensive range improvement. All areas of grasses have been included.

#### Publications:

County of San Mateo, Forest Resources Study Committee, Forest Resources of San Mateo County, Plate II, General Vegetative Types. 1971.

County of Sonoma, Planning Department, Spring, 1971 Land Use Overlay for 7½ Minute U.S.G.S. Orthophoto Quadrangle, various sheets for study area. Advance copies, subject to change. May, 1972.

United States, Department of the Interior, Geological Survey. Miscellaneous 7.5 Minute Series (Topographic) Quadrangles for the study area.

- - - - , Menlo Park, California. Aerial color infrared transparencies taken in March and June, 1971.

#### Slope

Slope information is useful for broadly determining suitability of specific sites for various activities, as well as an important factor in the analysis of hazards to public safety that is detailed below. Preliminary slope information had been prepared by the Geological Survey for the study area, and from that information, maps delineating slope in six categories have been prepared: 0-5%, 5-15%, 15-30%, 30-50%, 50-70%, and Over 70%. The United States Department of the Interior, Geological Survey, Topographic Division, in Menlo Park, California supplied advance copies of photo-mechanically-derived color separations ("choke maps") of selected slope categories for this analysis.

#### Seismic Response

All of the geologic formations within the area studied are subject to seismic effects since they are generally adjacent to a major active fault and are therefore in close proximity to epicentral zones of strong earthquakes. Within this area physical resistance to seismic shaking is of greater importance than proximity to a fault trace or zone.

The formations, vibrating in response to an earthquake, are considered a hazard in two respects. The shaking may be transmitted to man-made structures, causing damage or failure, or landsliding may be induced on those sloping areas which are susceptible to failure. The latter areas are largely accounted for in the "critical formations at 30%+ slope" category, on the Earth Stability and Flood Hazard map.

Based on available generalized information, three categories have been described: high, medium, and low or unknown relative seismic response.

High Relative Response: "mud", "bay mud", "marine deposits: mud, gritty mud, silt and sand in Bodega Head quadrangle", older artificial fills, landslides.

Moderate Relative Response: alluvium, old alluvium, slope wash and debris, sand, sand dunes, beaches, older beaches, terrace deposits.

Low or Unknown Relative Response: all other formations.

The ranking is based on references by professional geologists to specific formations with known engineering properties. Therefore, many other formations not ranked as high or moderate may exhibit noteworthy seismic response. It has been assumed that the formations noted in the literature are, however, the more commonly critical ones.

#### Publications:

Rice, Salem J. and Rudolph G. Strand. Preliminary Report to Accompany Geologic and Slope Stability maps of the Tennessee Valley, Lucas Valley and North Coastal Areas, State of California, Division of Mines & Geology, San Francisco, California. 1971.

Schlocker, J., M.G. Bonilla and D.H. Radbruch. Geology of the San Francisco North Quadrangle, California, Misc. Geologic Investigations, Map 1-272, U.S. Department of Int. Geological Survey, Menlo Park, California 1958.

#### Earth Stability and Flood Hazard

This mapping includes: known critical formations, landslides,

known and estimated flood-prone areas, and relative erosion susceptibility of coastal geologic formations.

### Known Critical Formations and Landslides

A critical formation is defined as one which is known to be significantly susceptible to mass slope failure such as land-sliding as a result of natural weathering and degradation. "Significantly susceptible" formations are those which exhibit 1) low or moderate slope stability characteristics in terms of engineering properties; 2) are known by field and map study to have failed in notable area-wide amounts.

Some of the important and/or larger formations are:

Landslides

Merced Formation

Monterey Shale (Marin County)

Purisima Formation

Santa Cruz Mudstone

Franciscan Melange or Sheared Franciscan

In reality, in all formations, some amount of slope failure is possible under a given set of conditions. Construction activities by man can significantly increase failure - particularly in the critical formations.

### Publications:

Blake, M.C., Judith Terry Smith, Carl M. Wentworth and Robert H. Wright. Preliminary Geologic Map of Western Sonoma County and Northernmost Marin County, California, Basic Data Contribution #12, United States Department of the Interior, Geological Survey, Menlo Park, California. 1971.

Bonilla, M.G. Preliminary Geologic Map of the San Francisco South Quadrangle and Part of the Hunter's Point Quadrangle, California (Misc. Field Studies Map MF-311) Basic Data Contribution #29, United States Department of the Interior, Geological Survey, Menlo Park, California. 1971.

Brabb, Earl E. Preliminary Geologic Map of the Central Santa Cruz Mountains, California. Basic Data Contribution #6, United States Department of the Interior, Geological Survey, Menlo Park, California. 1970.



Gluskoter, Harold T. Geology of a Portion of Western Marin County, California, Map Sheet 11, State of California, Division of Mines & Geology, San Francisco, California. 1969.

Huffman, Michael E., Preliminary Map - Landslides and Related Deposits, Russian River to Fort Ross. Advance information received prior to publication, incomplete and subject to change. State of California, Resources Agency, Department of Conservation, Division of Mines and Geology. March, 1972.

Rice, Salem J. and Rudolph G. Strand. Preliminary Report to Accompany Geologic and Slope Stability maps of the Tennessee Valley, Lucas Valley and North Coastal Areas, State of California, Division of Mines & Geology, San Francisco, California. 1971.

Schlocker, J., M.G. Bonilla and D.H. Radbruch. Geology of the San Francisco North Quadrangle, California, Misc. Geologic Investigations, Map 1-272, United States Department of the Interior, Geological Survey, Menlo Park, California. 1958.

#### Personal Communications:

Brabb, Earl. United States Department of the Interior, Geological Survey, Menlo Park, California. March, 1972.

Cummings, Jon C., Professor and Chairman, Department of Geology, California State College, Hayward, California. 1970.

Rice, Salem J., United States Department of the Interior, Geological Survey, Menlo Park, California. 1972.

Wentworth, Carl. United States Department of the Interior, Geological Survey. January and March, 1972.

#### Known Flood Prone Areas

Known flood prone areas are derived from published sources. These are assumed based on known storm-flood records or "project storm" figures. The minimum watershed area for which flood prone areas are recorded is 25 square miles in urban areas and 250 square miles in rural areas. This means that many smaller coastal streams are not recorded even though they may well be flood prone.

### Publications:

United States Army Engineer District, San Francisco, California, Corps of Engineers. Report on Floods of December, 1964 in Northern California Coastal Streams. Volume III. December, 1965.

United States, Department of the Interior, Geological Survey, San Francisco Bay Region Environment and Resources Planning Study, Flood-Prone Areas Between Point Reyes Station and Bolinas, Marin County, California. Basic Data Contribution 19. 1971.

- - - - , Flood-Prone Areas of Coastal San Mateo County, California. Basic Data Contribution 20. 1971.

### Estimated Flood Prone Areas

Where map data on inland flooding in such larger watersheds do not extend westerly to the coastal outlet of major streams, an estimation has been made based on location of alluvial deposits and study of topographic information.

In the case of smaller watersheds only flat (0-5%) areas of alluvium (from geology map) are shown. It is assumed these are potential flood areas since all alluvium must be water-borne. The evidence is sufficient to assume this to be the case until more detailed information can prove otherwise.

Where such alluvial deposits meet a flat terrace deposit, it is probable that flooding has or can take place even though not enough alluvium exists to be recorded on the geologist's map. Therefore, an estimated area of appropriate width has been shown along the stream channel to indicate a potential flood area. Here again evidence is sufficient to assume this to be the case until more specific study can prove otherwise.

### Publications:

Blake, M.C., Judith Terry Smith, Carl M. Wentworth and Robert H. Wright. Preliminary Geologic Map of Western Sonoma County and Northernmost Marin County, California, Basic Data Contribution #12, United States Department of Interior, Geological Survey, Menlo Park, California. 1971.

Bonilla, M.G. Preliminary Geologic Map of the San Francisco South Quadrangle and Part of the Hunter's Point Quadrangle, California (Misc. Field Studies Map MF-311).

Basic Data Contribution #29, United States Department of Interior, Geological Survey, Menlo Park, California. 1971.

Brabb, Earl E. Preliminary Geologic Map of the Central Santa Cruz Mountains, California. Basic Data Contribution #6, United States Department of Interior, Geological Survey, Menlo Park, California. 1970.

Gluskoter, Harold T. Geology of a Portion of Western Marin County, California, Map Sheet 11, State of California, Division of Mines & Geology, San Francisco, California. 1969.

Schlocker, J., M.G. Bonilla and D.H. Radbruch. Geology of the San Francisco North Quadrangle, California, Misc. Geologic Investigations, Map 1-272, United States Department of Interior, Geological Survey, Menlo Park, California, 1958.

#### Relative Erosion Susceptibility of Coastal Geologic Formations

This mapping is based upon interpretations of generalized mapped geologic formations and conceptual models presently being developed by researchers at the U.S. Geological Survey. That study is limited to a theoretical estimation of susceptibility of individual formations to erosion and not to erosion rates. The concept centers on the inherent erosion resistance of the formation and the presence of related theoretically static protective elements - that condition wave impact - such as shallow foreshores and rocky tidepool areas.

Sand budget, the critical element in determining cliff retreat rate, is not included. Appropriate data are not available as yet and the budget may be considerably altered by land uses within any watershed. Since the nature of such land use changes may not be predictable, policies based on this classification system should include appropriate information as the changes occur, specifying how they might alter the sand budget, and therefore indirectly the rate of cliff retreat.

Erosion susceptibility is ranked and mapped according to the following condition sets:

High Susceptibility to Coastal Erosion

Landslides and other slope failures

Weak formations - unprotected

Weak formations - protected, but at an active fault

Moderately resistant formations, unprotected at an active fault

Moderate Susceptibility to Coastal Erosion

Weak formations - protected

Moderately resistant formations - protected, but at an active fault

Moderately resistant and resistant formations - unprotected

Resistant formations - unprotected at an active fault

Low Susceptibility to Coastal Erosion

Moderately resistant and resistant formations - protected

Erosion resistance of geologic formations used in the erosion susceptibility rankings above are as follows:

Weak Formations: Franciscan melange and Sheared Franciscan sandstone, the Merced and Purisima Formations, areas of landslides and other slope failures, alluvium, slope wash, terrace deposits, and sand dunes.

Moderately Resistant Formations: all formations not considered "Weak" or "Resistant".

Resistant Formations: formations that consist largely of chert, granite, limestone or similar rocks.

Publications:

Blake, M.C., Judith Terry Smith, Carl M. Wentworth and Robert H. Wright. Preliminary Geologic Map of Western Sonoma County and Northernmost Marin County, California, Basic Data Contribution #12, United States Department of Interior, Geological Survey, Menlo Park, California. 1971.

Bonilla, M.G., Preliminary Geologic Map of the San Francisco South Quadrangle and Part of the Hunter's Point Quadrangle, California (Misc. Field Studies Map MF-311). Basic Data Contribution #29, United States Department of Interior Geological Survey, Menlo Park, California. 1971.



Brabb, Earl E., Preliminary Geologic Map of the Central Santa Cruz Mountains, California. Basic Data Contribution #6, United States Department of Interior Geological Survey, Menlo Park, California. 1970.

Gluskoter, Harold T., Geology of a Portion of Western Marin County, California, Map Sheet 11, State of California, Division of Mines & Geology, San Francisco, California. 1969.

Schlocker, J., M.G. Bonilla and D.H. Radbruch. Geology of the San Francisco North Quadrangle, California, Misc. Geologic Investigations, Map 1-272, United States Department of Interior Geological Survey, Menlo Park, California. 1958.

Personal Communications:

Lajoie, Kenneth. United States Department of the Interior, Geological Survey, Menlo Park, California. January and February, 1972.

Lajoie, Kenneth and John Tinsley. United States Department of the Interior, Geological Survey. March, 1972.

Known Problem Soils

In spite of the generality of the soil mapping upon which this interpretation is based, it appears possible to select zones in which soil characteristics are such that they represent an unusual hazard and/or significant economic constraint to structural development or appear particularly susceptible to damage from physical impacts. These interpretations are derived from the individual county soil reports from the Soil Conservation Service, backed by the consultant's knowledge of specific field situations, and are mapped at the soil association level.

In general, it is assumed that all soils on slopes 30% or greater represent at least a moderate erosion hazard and therefore a significant, though not absolute, economic as well as environmental constraint to construction. The known problem soils have been categorized as follows:

Extreme soil problems: these include steep eroded loams over dense clay subsoils and terrace escarpments, which are associated with landsliding and therefore represent the most significant soils constraint.

High soil problems: these include soils with an unusually high erosion potential, and are areas that should be subject to policies designed to minimize these effects should construction be allowed.

Medium soil problems: these are very poorly-drained soils or soils having a very high potential for wind erosion. Both of these situations suggest delicate ecological balances as well as economic constraints to construction.

Low soil problems: all others.

#### Publications:

Association of Bay Area Governments, General Soil Map, 1966.

United States, Department of Agriculture, Soil Conservation Service, Soil Survey, San Mateo Area, California. 1954.

-----, A Supplement to Soil Survey, San Mateo Area, California. 1969.

-----, Report for General Soil Map, Marin County, California, 1966.

-----, Report for General Soil Map, San Francisco County, California, 1966.

-----, Report for General Soil Map, Sonoma County, California, 1966.

#### Seismic Sea Wave Hazard

This mapping indicates those coastal sections within which seismic sea waves could be expected to encroach inland. The distance and configuration of runup are not shown. The mapping is based on information derived from a study currently underway by scientists at the U.S. Geological Survey. The criteria upon which this mapping is based are as follows:

20 foot runup line was assumed; the 20 foot elevation from the Geological Survey's 7.5 Minute, 1:24,000 scale Quadrangles has been delineated as the potential runup line along open coastline; this runup assumption has been modified as local bathymetric conditions would affect wave energy; any oceanward direction of wave arrival has been assumed; depth of inundation has not been shown or estimated.

#### Publications:

Ritter, John R. and William R. Dupre, Maps Showing Areas of Potential Inundation by Tsunamis in the San Francisco Bay Region, California, advance information received prior to publication and subject to change. United States Department of Interior, Geological Survey, Menlo Park, California.

#### Land Ownership

This includes all land ownership and/or parcelization information available from the files of the Association of Bay Area Governments and the county planning departments. This information serves both to distinguish public and private ownership and to help identify the types of planning, regulating and management responses required by the shape and sizes of the private holdings.

#### Publications:

Association of Bay Area Governments, Ocean Coastline Study, Map 6: Public Ownership and Land Values, 1969. 1970.

County of Marin, Planning Department. Land ownership map, untitled. 1:48,000. 1972.

County of San Mateo, Official Map, 1" = 5,000'. 1960.

- - - - - , Regional Planning Committee, Parks and Open Space: A Program For San Mateo County. June, 1968.

- - - - - , Ways and Means Committee of the Regional Planning Committee, Parks and Open Space: Financing the Plan. January, 1971.

- - - - - , Planning Commission, Land Ownership in San Mateo County (map, 1" = 5,000', coastal zone only, undated).

County of Sonoma, Planning Department, Sonoma County North Coast (map, 1" = 1,000', parcels.) 1971.

State of California, Resources Agency, Department of Navigation and Ocean Development, Comprehensive Ocean Area Plan. General Inventory, Land Ownership. 1971.

### Land Use

Existing land use patterns have been determined through collection of all known land use information available from various public agencies.

### Publications:

Association of Bay Area Governments, Preliminary Regional Plan Report, Land Use, 1965 (map). 1966.

- - - - , Ocean Coastline Study, Map 5: Land Use, 1965. 1970.

County of San Mateo, Planning Commission, land use map (untitled, undated, 1" = 5,000').

County of Sonoma, Planning Department, Spring 1971 Land Use Overlay for 7½ Minute U.S.G.S. Orthophoto Quadrangle, advance copies, subject to change. May, 1972.

State of California, Resources Agency, Department of Navigation and Ocean Development, Comprehensive Ocean Area Plan, General Inventory, Land Use-Site Characteristics. 1971.

### Infrastructure

Information regarding the jurisdictions and facilities of the numerous sewer and water districts, as well as the locations of existing and proposed roads and highways has been collected and mapped.

### Publications:

County of San Mateo, Map of Sanitary Sewerage Service Areas and Existing Facilities (1" = 5,000'). 1970.



City and County of San Francisco, Department of Public Works, Bureau of Engineering, sewer services map (untitled). 1970.

City and County of San Francisco, Water Department, Diagram of System. Undated.

Coastside County Water District, District Boundary and Service Area Map. 1972.

Daly City, service area boundary and District Boundary (sewer service). undated.

Daly City, Municipal Water System and Dimond Public Utility District, Water System Map, 1" = 500', 1970.

Frahm, Edler & Associates, Half Moon Bay Basin Water Pollution Control Study, Figures I and II.

North Coast County Water District, Boundary Map, with water system added. February, 1972.

State of California, Business and Transportation Agency, Department of Public Works, Division of Highways, State Highway Map, 1971.

- - - - - , District IV, miscellaneous Route Adoption Maps for proposed State Highways.

United States Department of the Interior, Geological Survey, Map Showing Areas Serviced by Municipal and Private Sewerage Agencies, San Francisco Bay Region, 1970.

- - - - - , Map Showing Areas Serviced by Municipal and Private Water-Distribution Agencies, San Francisco Bay Region, 1970.

#### Personal Communications:

City of Pacifica, Personal Communication and map of proposed construction of sewerage facilities. March, 1972.

Coast Springs Water Company, Personal Communication and map of services. March, 1972.

County of San Mateo, personal communication and work map showing water districts and service area (1" = 5,000'). February, 1972.

County of Sonoma, personal communication with water district and water company boundaries (approximate) map, 1:125,000. March, 1972.

Duck Cove Water Company, Personal Communication, February, 1972.

Jenner Water System, Personal Communication and map of services. March, 1972.

Marin Municipal Water District, Personal Communication and map of District. March, 1972.

Olema Water System, Personal Communication and map of system. March, 1972.

#### Land Use Controls

Zoning and agricultural preserve (Land Conservation Act of 1965) lands information has been collected as available from the counties. All of the counties involved in this study maintain similar zoning classification systems, but the differences among the ordinances proved significant. A working classification was prepared to assist in the consultants comparing the implications of current zoning for the coastal area.

This was based upon the intent, expressed and implied, of the individual zoning categories and their respective definitions. A working regional zoning map has been prepared and will be of further use during finalization of the implementation procedures.

#### Publications:

City of Half Moon Bay, Zoning Plan Map. undated.

City of Pacifica, Municipal Code, Chapter 4, Title 9, Zoning (includes maps). undated.

County of Marin, Planning Department, Marin County Agricultural Preserves (map, 1:48,000). April, 1970.

County of Marin, Planning Department, zoning maps for: Bolinas, Dillon Beach, Inverness, Marshall, Muir Beach, Nicasio, Olema, Point Reyes Station and Inverness Park, San Geronimo Valley, Stinson Beach, and Tomales (1"=300').

County of San Mateo, Agricultural Preserves (map, 1"=5000"). 1971-1972.

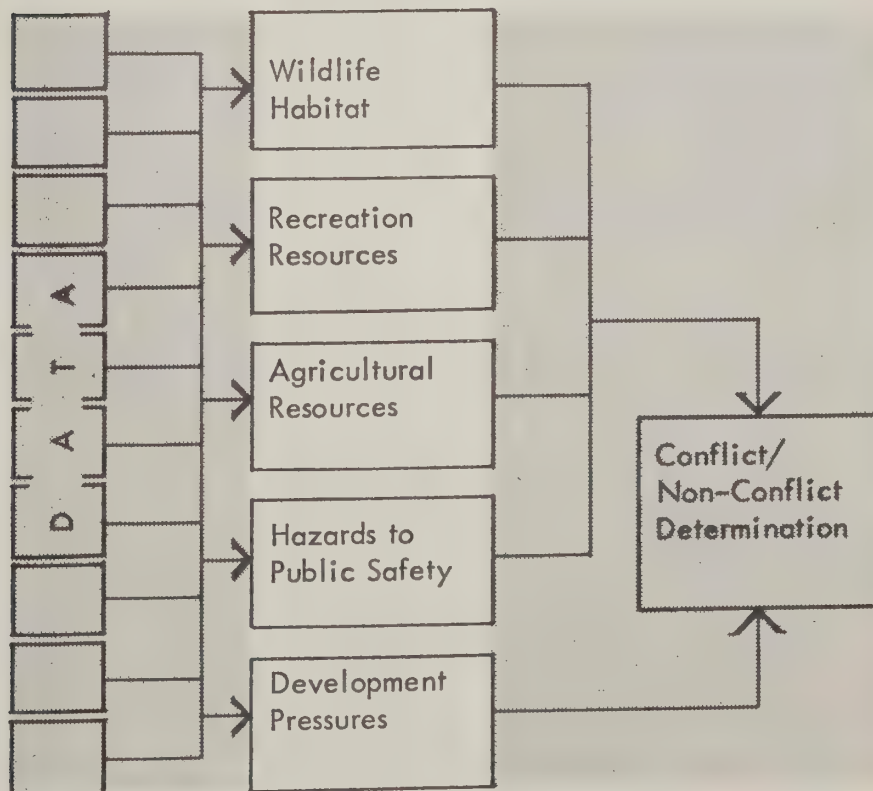
County of Sonoma, Planning Department, Agricultural Preserves (map), April, 1971.

-----, miscellaneous Composite Zoning Maps for south Sonoma County coastal area. 1972.

Personal Communication:

County of San Mateo, Planning Commission. Personal communication and work map of zoning, 1"=5,000'. February, 1972.

#### OPEN SPACE RESOURCES AND DEVELOPMENT CONSTRAINTS



Pertinent and selected information from the thematic work maps described above has been compiled into the following Conservation and Development: Opportunities and Constraints (CDOC) map series:

Wildlife Habitats  
 Recreation Resources  
 Agricultural Resources  
 Environmental Hazards to Public Safety, and  
 Relative Development Pressures.

The data used and the method of determination for each of the CDOC maps are described in the sections that follow.

### Wildlife Habitats

Three zones are mapped: 1) marine and coastal wildlife habitats, 2) primary habitat impact areas, and 3) secondary habitat impact areas.

#### Zone I - Wildlife Habitats

Included in this zone are important coastal bays and estuaries, mudflats, shellfish beds, salt and fresh water marshes, major rocky intertidal areas, beaches, sand dunes, sand spits, and important steelhead and salmon spawning streams, as shown on the Ocean Coastal Marine Resource work map, as well as on the work map, Scientific and Educational Study Areas.

#### Zone II - Primary Impact Areas

The primary impact areas identified are associated with the various water-related coastal resources. The health or quality of these resources is specifically dependent upon the land use and management activities employed within the watersheds - a watershed being all the land area which drains into a stream or estuary. Within each watershed, some lands are more critical, or can, if improperly managed, contribute to significant degradation of the marine resource quality. Two types of land areas have been identified: 1) steep slopes immediately adjacent to the designated resource, and 2) flat valley areas having high water tables.

Steep slopes (30% or greater) adjacent to stream channels are critical for the maintenance of natural erosion and siltation.



tion processes. Poor agricultural practices, removal of vegetation, or disruption of soil mantle in such areas can accelerate soil erosion and increase siltation in the stream or estuary. Significant increases can lead to the destruction of spawning areas for fish and shellfish beds for oysters.

Flat valley areas immediately adjacent to estuaries or streams, especially those with high water tables, are important for the maintenance of water quality essential to the protection of marine habitats. Critical physical attributes are salinity, temperature, and discharge. These can be easily affected by land uses in the flat valley areas which involve chemical application, waste discharges, water extraction, (either from wells or the resource itself), etc. thus suggesting the need for precise impact management policies.

### Zone III - Secondary Impact Areas

Two secondary impact areas have been identified: 1) areas associated with marine or water-related habitats, and 2) areas important for the protection of beaches and sand dunes.

Entire watersheds have been identified as the secondary impact zone for the marine habitats. While Zone II represents critical impact areas, land use impacts on any of the lands draining to the resource will affect its quality. The watershed is an important impact zone because of the role that the hydrological system plays as an agent for transport of pollutants or increased sediment loads from the area of change to the marine habitat.

An offshore area to the 10 fathom line has been identified as an impact zone important for the protection of beaches. This is the maximum depth generally associated with littoral drift (the longshore transport of sand). The sand supply for beaches is derived from many sources, including stream sediment from erosion processes in the upland watersheds and coastal cliff erosion, and is carried by littoral movement, so man-made facilities within this zone frequently have had far-reaching effects. In many instances, the construction of breakwaters, groins, etc. has resulted in the disappearance of beaches due to the blocking of sand transport along the coast.

### Recreation Resources

All recreation resources shown on the work map Acknowledged Recreation Resources are included, as well as areas identified by the consultants as having significant and vulnerable visual attributes or valuable landscape characteristics that appeared to be of regional public importance for recreational purposes.

### Agricultural Resources

All areas identified on the Climate and Agricultural Soils work map as suitable for production of coastal-dependent specialty vegetable crops and areas shown on the Vegetation and Grazing Soils work map as suitable for grazing have been included in the Agricultural Resources mapping.

### Environmental Hazards to Public Safety

This mapping is a generalized and interpretive composite of five work maps:

- Slope
- Seismic Response
- Earth Stability and Flood Hazard
- Known Problem Soils
- Seismic Sea Wave Hazard

Much of the information included in the work maps is incomplete due to insufficient data availability. Thus, while this hazard determination is sufficiently precise for the establishment of regional policy zones, further, more detailed studies may reveal small areas within these policy zones of lesser or greater hazard potential.

The mapping is based on a threshold approach, wherein the presence of any one of the conditions of the following sets is considered sufficient to warrant inclusion of a given area in that category.

#### Severe Relative Hazard

- Major landslides, slumps, and other slope failures
- Known critical formations, greater than 30% slope
- Known active fault trace or zone
- High relative seismic response
- Known flood prone areas
- High susceptibility to coastal erosion
- Extreme soil problem areas

#### High Relative Hazard

- Known critical formations at less than 30% slope
- Other formations at greater than 30% slope
- Moderate relative seismic response
- Estimated flood prone areas
- Moderate susceptibility to coastal erosion
- High soil problem areas

#### Moderate Relative Hazard

- Moderate soil problem areas
- Other 5% to 30% slopes not included above

#### Low Relative Hazard

- Other 0% to 5% slopes not included above

#### Relative Development Pressures

The map of relative development pressures attempts to identify those portions of the study area that are or may soon be under pressure for development. A limited number of development indicators – factors of importance to success of a residential development – have been assigned relative values, the values added for many representative parcels in the study area, and the totals compared to produce an estimate of relative development pressure by subarea.

While the availability of sewer and water are prime requisites for any extensive development, these factors have not been included in the present determination. It is felt that, since there are numerous request and proposals to expand the existing service area boundaries, any assignment of weight to either the existing or proposed service area prior to completion of this study would necessarily be highly subjective at best.

City and county land use policies have not been considered. Thus, agricultural preserves, zoning, development policies, development regulations, and taxing policies have been omitted from this determination. The result is an estimation of development pressure that is not dependent upon local factors that may be modified or reversed in the near future.

The following is a summary of the data categories and their respective weightings.

## Commute time to major work centers:

0 - 15 minutes	24 points
15 - 30 minutes	18
30 - 60 minutes	12
over 60 minutes	0

## Second home driving time from Golden Gate Bridge:

less than 2 hours	12
2 - 3 hours	8
3 - 4 hours	3

## Development proposals:

Approved	24
Preliminary	12
None	0

## Slope:

under 30%	24
30% or greater	0

## Parcel orientation:

Water frontage	12
No water frontage	0

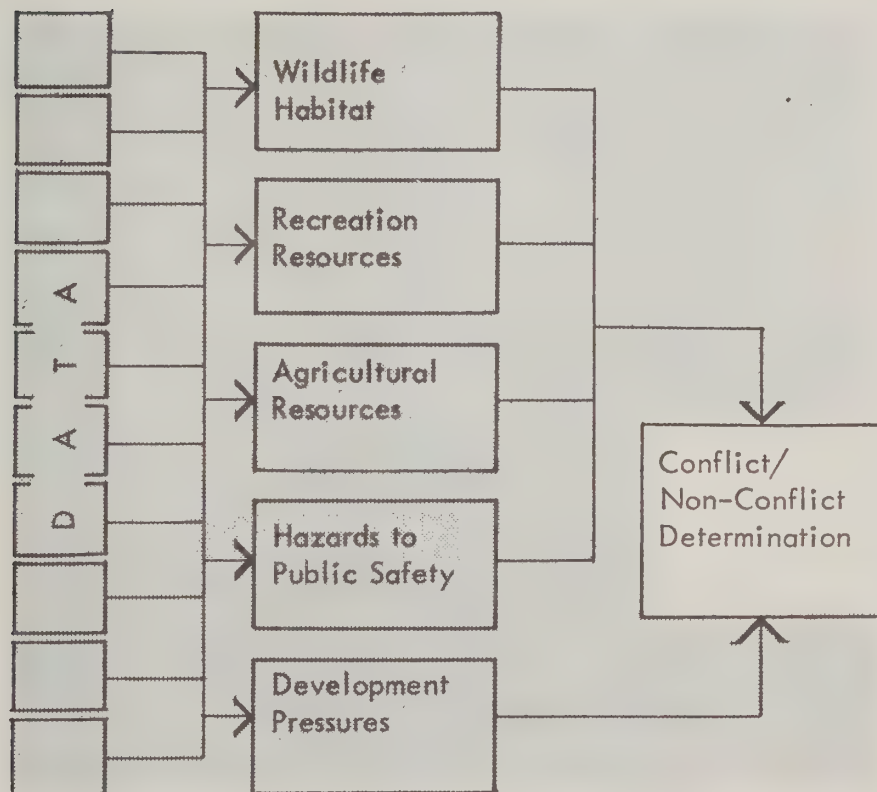
All areas having slopes greater than 50% were assumed to be too steep for extensive development, and have been so mapped.

The subarea totals varied from 3 to 98, and based upon 1) the characteristics of the range itself, 2) the consultant's knowledge of the study area, and 3) discussions with the various county planning staffs, totals were grouped as follows:

High Relative Development Pressure	90 or more
Medium Relative Development Pressure	60 - 89
Low Relative Development Pressure	30 - 59



## OPEN SPACE AND DEVELOPMENT CONFLICTS



To determine the areas having the highest open space value and most severe hazards to public safety, selected information from the Conservation and Development: Opportunities and Constraints map series has been combined into the Open Space Policy map, shown in Chapter III of this report. Following is a list of information that has been selected from the CDOC map series to be included in the Open Space Policy map.

### Wildlife Habitats:

- 1) marine and coastal wildlife habitats;
- 2) primary habitat impact areas.

### Recreation Resources:

all areas mapped.

## Agricultural Resources:

- 1) prime coastal-dependent agricultural lands;
- 2) lands suitable for grazing.

## Environmental Hazards to Public Safety:

severe relative hazards.

## Relative Development Pressures:

slopes greater than 50%.

A comparison of the Open Space Policy map and the Relative Development Pressures map reflects the coastal resource as seen from both perspectives – open space and development. This comparison has been made in order to determine those areas that have the least potential for conflict between open space and development interests. The following tables show the results of that comparison. For this set of comparisons, lands suitable for grazing were not included.

Developable Lands, Hazards, and Open Space Value in the Coastal Planning Area:

TABLE A AREAS (IN ACRES) IN THE PRIMARY COASTAL PLANNING AREA (PCPA)

County	PCPA	Remainder of County	Total	PCPA as a % of Total
Sonoma	39,623	968,228	1,007,851	3.9%
Marin	60,979	265,844	326,823	18.7%
San Mateo	56,058	230,464	286,522	19.6%
TOTAL	156,660	1,464,536	1,621,196	9.7%

TABLE B DEVELOPABLE LAND IN THE PCPA (ACRES)

County	Excessive Slope greater than 50%		Developable land		PCPA	
	Acres	%	Acres	%	Acres	%
Sonoma	12,833	32.4	26,790	67.6	39,623	100
Marin	5,202	8.5	55,777	91.5	60,979	100
San Mateo	10,298	18.4	45,760	81.6	56,058	100
TOTAL	28,333	18.1	128,327	81.9	156,660	100

TABLE C CONFLICT AND NON-CONFLICT AREAS IN DEVELOPABLE AREAS OF PCPA

County	No Conflict		Conflict		Total Developable area	
	Acres	%	Acres	%	Acres	%
Sonoma	11,021	41.1	15,769	58.9	26,790	100
Marin	12,946	23.2	42,831	76.8	55,777	100
San Mateo	7,451	16.3	38,309	83.7	45,760	100
TOTAL	31,418	24.5	96,909	75.5	128,327	100

TABLE D ENVIRONMENTAL HAZARDS IN DEVELOPABLE AREAS OF PCPA

County	I*		II		III & IV		Total Developable Land	
	Acres	%	Acres	%	Acres	%	Acres	%
Sonoma	9,146	34.1	17,083	63.8	561	2.1	26,790	100
Marin	20,185	36.7	31,823	57.1	3,769	6.7	55,777	100
San Mateo	20,933	45.7	23,737	51.9	1,090	2.4	45,760	100
TOTAL	50,264	39.7	72,643	56.6	5,420	4.2	128,327	100

\* Most hazardous

TABLE E CONFLICT POTENTIALS IN THE CONFLICT AREA

County	Environmental Hazard I		Recreational Use		Specialty Agriculture		Total Conflict Area Acres
	Acres	%	Acres	%	Acres	%	
Sonoma	9,146	58.0	3,676	23.3	158	1.0	15,769
Marin	20,185	47.1	13,164	30.7	4,866	1.1	42,831
San Mateo	20,933	54.6	9,943	26.0	24,540	64.1	38,309
TOTAL	50,264	51.9	26,783	24.5	29,564	30.5	96,909

Note: Component potentials percentages do not add to 100% because some land has more than one conflict potential.

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